

NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com

February 20, 2006 ■ Volume 23, Number 7

Microsoft, Cisco not in synch

BY ELLEN MESSMER

SAN JOSE — While Microsoft and Cisco continue the hard sell on their respective visions for quarantine-based endpoint security, customers and industry experts are asking hard questions about cost, complexity and the willingness of these industry giants to work together.

The dual dynamics were on display at last week's RSA Conference 2006, where Microsoft Chief Software Architect Bill Gates and Cisco CEO John Chambers each used the term "ecosphere" in describing the need to

See RSA, page 12

WiderNet

Talk about a stress test

CCIE lab exam brings even the best to their knees.

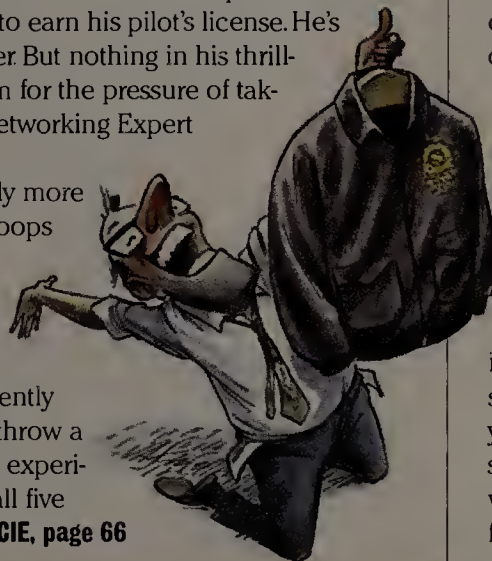
BY CAROLYN DUFFY MARSAN

Anthony Sequeira knows a little about stress. The 35-year-old network instructor from Tampa, Fla., once purposely stalled a single-engine plane and sent it into a tailspin five times in a row as part of his efforts to earn his pilot's license. He's also a world-class poker player. But nothing in his thrill-seeking exploits prepared him for the pressure of taking the Cisco Certified Internetworking Expert (CCIE) lab exam.

The CCIE exam is "absolutely more stressful than doing loop-de-loops in a plane," Sequeira says.

"With piloting, you conquer fear by eliminating the unknowns. The fear of the unknown is what you consistently face in the CCIE. They could throw a topic at you that you have no experience with. They did it to me all five

See CCIE, page 66



DAN VASCONCELLOS

Will major vendors dilute open source?

BY JENNIFER MEARS AND ANN BEDNARZ

Commercial software giants such as Oracle and IBM are moving deeper into and changing the face of the open source community by snapping up start-ups.

Though arguably in its early stages, the trend is accelerating (see graphic, page 67). Last week Oracle announced it would buy open source database vendor Sleepycat Software, and rumors continue to swirl about its interest in JBoss, one of the leading open source application server firms. Last year IBM bought open source infrastructure company Gluecode Software, and Check Point Software is finalizing its purchase of Snort-creator Sourcefire. At the same time, commercial vendors are beginning

to offer versions of their proprietary products for free and are contributing proprietary code to the open source community hoping to make money on services and support.

Still, there are concerns as commercial vendors ingest the companies that were the first to make this business model work. At risk is the loss of user access to key application development personnel — a hallmark of open source projects — and the potential departure of critical project stewards.

"I believe what will really determine the success or failure of commercial firms purchasing open source vendors is the extent to which they can keep the key developers," says Barry Strasnick, CIO at CitiStreet, a benefits management

See Open source, page 67

Health net gets a checkup

BY DENI CONNOR

SAN DIEGO — Amid privacy, security and technology concerns, healthcare IT professionals got a progress report on the status of the Nationwide Health Information Network, a project that seeks to improve patient care and reduce medical errors in im-

plementing electronic health record systems.

At the Health Information Management and Systems Society (HIMSS) show in San Diego last week, 25,100 IT managers and CIOs listened as a number of speakers, including Dr. David Brailer, national coordinator for

Health Information Technology for the Department of Health and Human Services, described their visions of such a network, the current barriers to adoption and the progress being made.

In April 2004, President Bush charged the IT industry to build a system that would provide every U.S. citizen by 2014 with an electronic health record (EHR) that could be accessed from any location. He appointed Brailer to coordinate this effort and establish the NHIN.

Last December, Brailer's office awarded \$18.6 million in contracts to four consortia led by Accenture, Computer Science

See Health, page 10





A Company Tracking 9 Million Container Moves a Year.
Running on Microsoft SQL Server 2005.





Jettainer manages shipping containers for Lufthansa and US Airways on 3,000 flights to 400 airports every day. To keep up with a database growing at 30% a year, they upgraded to SQL Server™ 2005. See how at microsoft.com/bigdata

Microsoft
**Windows
Server System**



© 2006 Microsoft Corporation. All rights reserved. Microsoft, the Windows logo, Windows Server System, and "Your potential. Our passion." are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.



IF YOU HAVE LESS TIME AND MONEY

We have the solutions.

GATEWAY UNDERSTANDS YOUR ORGANIZATION'S NEEDS. In this day and age of dwindling budgets and tight deadlines, you can't afford technology that doesn't keep up. So how about an E-9415R server that packs 3 SCSI hard drives into a 1U space? Or one with RAID 5 and a redundant power supply that keeps your data safe? Or even one of the best money-back guarantees in the industry? The editors of *InfoWorld* praised its value and performance, stating, "Overall, the 9415 is a good value. It is easy to order in various configurations through the Gateway web site and offers excellent performance." But don't just take their word for it. See for yourself how Gateway delivers more.

TO LEARN MORE CALL 1-866-531-8297 OR VISIT Gateway.com

GATEWAY® E-9415R SERVER - Supporting single-core or Dual-Core Intel® Xeon Processors • Microsoft® Server 2003 Operating Systems • 3 Hot Swap SATA or SCSI Drive Bays with RAID 5 Capability (up to 1.5TB of Storage¹) • Integrated Intel® Dual 10/100/1000 (Gigabit) Ethernet • Hot-swap Redundant Power Supplies • 3- to 5-Year Parts and Limited Warranty with 3-Year On-Site-Service² • 90-day Limited Money-Back Guarantee³



1. Accessible capacity varies. MB = 1 million bytes; GB = 1 billion bytes; TB = 1 trillion bytes. 2. Limited warranties and service agreements apply; visit gateway.com for details. 3. See gateway.com for details. ©2006 Gateway, Inc. All rights reserved. Trademarks used herein are trademarks of Gateway, Inc. in the United States and/or other countries. Intel, Intel Inside, the Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft is a registered trademark of Microsoft Corporation. See important Microsoft activation requirements at gateway.com/ms-reg. Not responsible for typographical errors. Ad Code: 128316

2.20.06 NETWORKWORLD

News

- 8 Cisco CIO** takes wireless industry to task.
- 8 Google, BearingPoint** form alliance to put support behind enterprise search.
- 8 Network security** is the key to keeping **VoIP secure**.
- 10 Spending survey: Telecom** is over the hump.
- 12 Business** should pay more attention to **software security**.
- 14 Microsoft** to pack **ID technology** in Active Directory.
- 14 Microsoft's Office 2007** includes new twists.
- 16 Analysts: Juniper** could do better.
- 16 Switch vendors** prioritize **blades**, deemphasize servers.

Net Infrastructure

- 17 Security issues** debated.
- 17 CA** set to tackle Web services security.
- 18 Kevin Tolly:** Space invaders: You and WIPS.
- 18 Internet Security Systems** bolsters network monitoring family.

Enterprise Computing

- 20 Users** weigh Exchange mobile messaging.

Application Services

- 21 Start-up** offers content management.
- 21 Quest** extends single sign-on support.
- 22 Scott Bradner:** Father knows best about net neutrality.
- 22 Sophos** enters e-mail security appliance market.

Service Providers

- 24 Johna Till Johnson:** Tackling telecom policy.
- 24 Cingular** touts upgrades to wireless.

Technology Update

- 25 Multithreading** weaves its way into networks.
- 25 Steve Blass:** Ask Dr. Internet.
- 26 Mark Gibbs:** Sound advice from Acid Pro.
- 26 Keith Shaw:** Cool tools, gizmos and other neat stuff.

Opinions

- 28 On Technology:** Security: Lots more work to do.
- 29 Ken Presti:** Enter the age of the warm, fuzzy IT integrator.
- 29 Howard Anderson:** China, Incorporated.
- 68 BackSpin:** Demo and the Next Big Things.
- 68 Net Buzz:** Wikipedia is a wonderful resource, but. . .

Management Strategies

- 59 Insurer conquers change management:** An IT manager's account of the obstacles to rolling out an automated process.

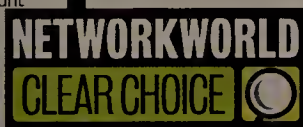
Features



A dose of telemedicine saves lives, cuts costs

Partners Healthcare has deployed telemedicine applications that extend treatment to home-bound patients, such as Carolyn Thornton, who transmits daily blood pressure readings from her suburban home to cardiac nurses in Boston. **Page 53.**

Clear Choice Test: VoIP over SSL VPN



After testing 10 SSL VPN products to determine how well they handle voice traffic, we can report that the news is generally good. In fact, in some scenarios voice quality can actually improve by using SSL VPN links. **Page 56.**

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 16 for more contact information. **REPRINTS:** (717) 399-1900
 ■ **SUBSCRIPTIONS/CHANGE OF ADDRESS:** **Phone:** (508) 490-6444; **Fax:** (508) 490-6400; **E-mail:** nwcirc@nww.com; **URL:** www.subscribenw.com

Online www.networkworld.com

Available only on NetworkWorld.com

Get your WAN application acceleration questions answered.

Next week is our online discussion on different ways to accelerate applications across the WAN. Get detailed technical answers from experts at Cisco, Silver Peak, Packeteer and Citrix. Get a head start: Submit your questions now — mail them to agaffin@nww.com. We'll also have a library of papers for you to browse.

Complete RSA Conference coverage If you missed the show — or even if you were there, we've put

together a page linking you to all the news from the security conference.

DocFinder: 2247

What part of "competition" does Comcast not understand?

Network World Editorial Director John Gallant sits on his town's cable advisory committee. He cannot believe that Comcast raised local rates just as the town is negotiating with Verizon to allow a competing service that would cost less. **DocFinder: 2248**

Online help and advice

Mystery bandwidth use

Help desk guru Ron Nutter helps a user figure out what's eating up so much bandwidth on his network. **DocFinder: 2249**

CMDB in the real world

Dennis Drogseth, vice president of Enterprise Management Associates, discusses ITIL's Configuration Management Database. **DocFinder: 2250**

Got a question?

Post it in our forums and get help.

We've got all the key enterprise topics covered. Free registration is required. **DocFinder: 2252**

How do you define the data center?

Nemertes Research Analyst Andreas Antonopoulos tries to answer the question. **DocFinder: 2251**

An alternative to Java

Columnist Mark Gibbs takes a look at ActiveGrid, a development suite that relies on PHP and Python. **DocFinder: 2262**

Seminars and events

New IT Road map event

A full day of six fast tracks at IT Road map. Forty enterprise all-stars, analysts and vendors provide new technology, smart solutions and on-point expertise. Qualify to attend free in Boston, Chicago, Dallas and the Bay Area. **DocFinder: 2253**

BREAKING NEWS

Go online for breaking news every day. **DocFinder: 1001**

Free e-mail newsletters

Sign up for any of more than 40 newsletters on key network topics. **DocFinder: 1002**

What is DocFinder?

We've made it easy to access articles and resources online. Simply enter the four-digit DocFinder number in the search box on the home page, and you'll jump directly to the requested information.

The New Data Center concept has matured greatly since we began investigating it three years ago. In this issue, the first of our 2006 special reports, we reflect on best practices. Begins after page 36.

The New Data Center

NEWSbits

Bill would ban U.S. servers in China

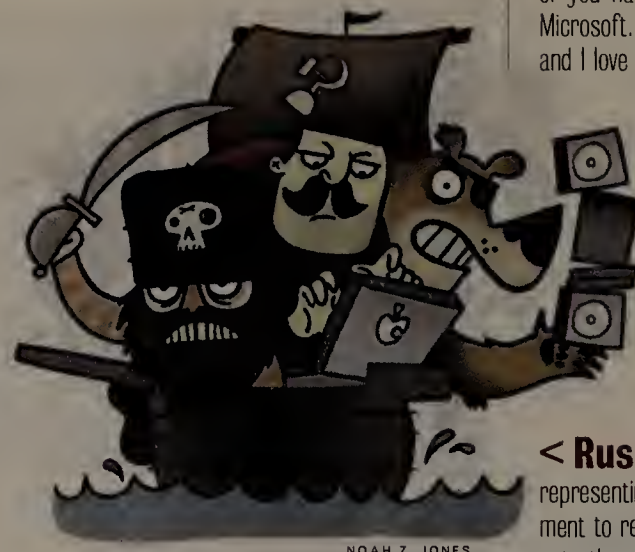
■ A U.S. lawmaker last week introduced legislation that would bar U.S. Internet companies from locating Web servers inside Internet-restricting countries such as China and Vietnam, with prison sentences for those who don't comply. Rep. Christopher Smith's (R-N.J.) bill, called the Global Online Freedom Act, also would prohibit U.S. search engine companies from altering the results of searches in countries such as China, and would prohibit U.S. Internet companies from giving personally identifiable customer information to the governments of Internet-restricting countries, except for legitimate law enforcement requests reviewed by the Department of Justice.

IBM preps patches for flaw

■ IBM is working on developing and distributing fixes to a vulnerability detected in IBM Tivoli Directory Server 6.x that could leave the software exposed to denial-of-service attacks. According to IBM, Tivoli Directory Server 6.x provides a Lightweight Directory Access Protocol identity infrastructure that can serve as the foundation for deploying identity management applications and Web services. The flaw, detected last week, was deemed less critical by Secunia Research, which reported the vulnerability in a security advisory. The vulnerability has been discovered in Version 6 of the software, and the Web site indicates other versions could be affected. According to the Secunia security advisory, the vulnerability is caused by an error within the LDAP server when handling certain requests, and "this can be exploited to crash the server via specially crafted requests sent to Port 389/tcp." The error can cause the server to crash because of a DoS attack committed on the local network, but security experts say the threat is minimal.

DHS warns of rootkit crackdown

■ A U.S. Department of Homeland Security official warned last week that if software distributors continue to sell products with dangerous rootkit software, as Sony BMG Music Entertainment recently did, legisla-



NOAH Z. JONES

{quote of the week}
{quote of the week}
{quote of the week}

"The cleverest way to solve a security problem is to make it not yours."

CTO Bruce Schneier, Counterpane CTO, during his RSA session on the economics of security.

The blog can be found at www.nww.com, DocFinder: 2244.

tion or regulation could follow. "We need to think about how that situation could have been avoided in the first place," said Jonathan Frenkel, director of law enforcement policy with the DHS' Border and Transportation Security Directorate, who was speaking at RSA Conference 2006 in San Jose. Last year, Sony distributed Extended Copy Protection software in some of its products. This digital rights management software, which used rootkit cloaking techniques normally employed by hackers, was found to be a security risk, and Sony was forced to recall millions of CDs.

Apple has a worm in MacOS X

■ A worm that affects computers running Apple's

TheGoodTheBadTheUgly

Ballmer shows the love. Speaking at last week's 3GSM World Congress in Spain, Microsoft CEO Steve Ballmer got the crowd feeling warm and fuzzy with these sentiments: "I'm a guy some of you have probably seen on the Internet yelling how much I love Microsoft. So my theme on this today is — I love the mobile industry and I love our operator partners."

Boring patches. What's the industry coming to when you can't get a little excitement from Microsoft's Patch Tuesday, the company's monthly release of software fixes? Microsoft last week issued seven patches, including fixes for critical security flaws in Internet Explorer and Windows Media Player. "These are seven of the most boring patches I've ever seen," said Russ Cooper, senior information security analyst at Cybertrust and editor of the NTBugtraq mailing list.

< Russian pirates. A coalition of U.S. trade associations representing copyright-based industries has called on the U.S. government to recognize serious copyright violations in Russia and to designate the country for possible sanctions. The International Intellectual Property Alliance cited piracy rates of 85% for business software, 67% for records and music, 81% for motion pictures and 82% for entertainment software.

MacOS X is circulating on the Internet, according to anti-virus software makers. The worm, Leap.A, spreads through the iChat instant messaging client and causes applications to run improperly, according to warnings posted on the sites of several anti-virus software makers. The discovery of the worm is noteworthy because MacOS X is generally regarded as being free of the many viruses and worms that can afflict computers running Microsoft's Windows operating system. However, Leap.A is not deemed a major threat, according to Symantec. Leap.A is sent from one computer to another as an attachment, called latestpics.gz, to an iChat message. The worm affects computers running MacOS X Version 10.4, Symantec says. When a user saves this attachment and clicks on it, a file called latestpics is created.

Amazon to take on iTunes

■ Amazon.com plans to launch its own Internet music service to rival Apple's iTunes Music Store, *The Wall Street Journal* reported last week, citing unidentified sources. The world's largest online retailer also plans to sell its own branded portable music players, and a subscription service that would offer deep discounts and preloaded songs to users of its music players. The company is in talks with four global music companies about a digital music service that could be launched as early as this summer, according to the report. With its history of selling CDs online and its huge customer base, Amazon could pose a formidable threat to Apple's domination of the online music business. Amazon still needs to sign licensing agreements with the four music companies: EMI Group, Sony BMG, Vivendi Universal SA's Universal Music Group and Warner Music Group.



"I don't care what anyone says, Laser-Disc is still cool!"

This week's Layer 8 caption winner by Chad Freiling makes us laugh because it reminds us of our days working in the Sight & Sounds department of Service Merchandise in the early 1990s when Laser Discs really were cool. See other entries at: www.nww.com, DocFinder: 2245



Sip energy. GULP DATA.



Server Facts:

Sun Fire T1000	IBM x366
2x THE PERFORMANCE¹	
3x THE CORES	
6	2
18x MORE COMPUTE THREADS PER RACK	
960	52
1/3 THE SIZE	
1U	3U
1/4 THE POWER CONSUMPTION	
300 Watts	1,300 Watts
THE RIGHT ARCHITECTURE FOR YOUR WEB AND APPLICATION WORKLOADS	
ULTRASPARC [®]	Xeon
1/3 THE PRICE	
\$3,495	\$13,147

The Sun Fire™ T1000 Solaris server with CoolThreads™ technology delivers 18 times more compute threads using less than 1/4 the power consumption of Xeon.

Introducing the world's first eco-responsible server. Maximize capacity with dramatic energy efficiency and amazing cost savings. Reduce the number of servers by as much as 3 to 1. And with 2 times the performance for web tier applications, meet the increasing demands on your network—all while looking out for the planet. Visit sun.com.



© 2005 Sun Microsystems, Inc. All rights reserved.

Base Pricing - IBM pricing based on configuration with 1 X Dual Core Xeon 3.0GHz processor / 2GB Memory / 4 x 1GbE ports / 1 x PSU / No Disk / SUSE LINUX Enterprise Server 9 1-16 CPUs & Support. IBM.com pricing 11/14/05 from <https://www-1.ibm.com/products/hardware/configurator/na/ui/submitConfigSelection.wss?nc=11319B0889146>. Sun Fire T1000 Solaris Server configuration based on 1 x 6 Core UltraSPARC® T1 processor at 1.0GHz / 2GB Memory / 4 x 1GbE ports / 1 x PSU / No Disk. IBM x366 product specifications from brochure, 08/26/05; <http://www-132.ibm.com/webapp/wcs/stores/servlet/CategoryDisplay?catalogId=840&storeId=1&langId=1&dualCurId=73&categoryId=2588660>. Power consumption readings come from rating of power supplies. Sun Fire T1000 Solaris server maximum power = 240 Watts. Threads per rack based on priced configurations. 40 x Sun Fire T1000 Solaris Servers delivering 24 threads per server being installed into a rack with 40RU of usable space. 13 x IBM x366 servers can be installed per rack with 40U of usable space. Each server configured with 2 x Xeon cores, with each core delivering 2 threads via hyperthreading. 9.6 GHz represents UltraSPARC® T1 processor maximum cumulative GHz.

¹Based on estimated relative webserving performance.

Cisco CIO takes wireless industry to task

BY IDG NEWS SERVICE

Despite improvements in recent years, the wireless industry has done a poor job of giving companies the tools they need to let workers access corporate data from mobile devices, Cisco CIO Brad Boston said last week at 3GSM World Congress, a huge mobile and wireless event held this year in Barcelona, Spain.

Boston said he was amazed as he walked around the show floor to see how many companies are focused on consumers rather than the enterprise. "There's a lack of focus on what we need," he said in a speech.

Boston figures that Cisco represents an opportunity for the mobile industry to sell as many as 40,000 devices. Yet it's been a struggle to develop a mobile program for Cisco employees, he said.

He began planning a mobile strategy a few years ago when he found there were about 12,000 Palm- and Windows-based devices being used by Cisco workers and that many were being used to access corporate data. He was concerned that a lack of security in the devices could let Cisco intellectual property leak into the wrong hands. To regain control, his team began to develop a program to support the mobile devices.

It wasn't easy. Boston found there was no single place to buy all the software he needed, and his team had to cobble together components to secure and manage the devices and enable remote access to corporate data. "When I talk to my peers, they all have the same problem," he said.

Another challenge was that operators like to customize devices with their own software and branding. That can be difficult for a global company such as Cisco, which would have to test its corporate software on a device that may be sold by 30 or more operators around the globe.

Over the last six months, Cisco has put 6,000 wireless PDAs in the hands of workers and plans to increase that number to 15,000 over the next six months, Boston said.

He acknowledged that mobile devices are improving in terms of their reliability and flexibility.

Vendors at the event strove to highlight what they are doing to advance mobile products and services:

- Nokia hinted at upcoming VoIP, camera optical zoom and WiMAX support on its phones. The company said it will release phones that can work with cellular networks and wireless LANs in the second quarter.

- Broadcom announced processor technology it said could enable mobile networks to support twice as many calls at higher quality.

- Texas Instruments said Global System for Mobile Communications handsets could cost as little as \$20 by yearend because of its new LoCosto four-in-one chip technology.

- Microsoft aired for the first time some Windows Live for Mobile services, including search technology that returns results relevant to a particular location.

- Access, which recently bought PalmSource, introduced a Linux operating system for smartphone developers.

- Sype announced a partnership with Hutchison 3G, a provider of IP-based mobile broadband networks in Europe, to offer what could be the first VoIP service for mobile phones. ■

Putting up big numbers

The 3GSM World Congress says 50,000 people converged on the event in Barcelona. Nearly 35,000 showed the first day, which is more than the entire show last year in Cannes, France. The show hosted nearly 1,000 exhibitors, up 40% from a year ago.

Google, BearingPoint team to support enterprise search

BY JOHN FONTANA

Google last week entered into its first partnership with a major professional services firm in hopes of attracting vertical industries to its search appliance with support and customization services.

Google is aligning with systems integrator BearingPoint, which will launch a search service that uses its own software platform and Google's APIs for integrating the Google Search Appliance with diverse corporate data stores.

Google is trying to prove it has what it takes to be an enterprise software provider. Google Enterprise Professional Program, which was established last September to help users deploy the Google Search Appliance, has 20 smaller systems integrator and professional services companies in the United States and another 14 in Europe as members.

Enterprise search is becoming a hot topic. IDC noted in a recent report that consumers as well as enterprise users have trouble locating information. Google, which dominates the consumer end of search services, is pushing deeper into an enterprise market in which established enterprise platform players offer a broad spectrum of search functionality along with gateways or connectors to third-party applications including Verity, Autonomy, Endeca, Fast Search & Transfer and Convera.

BearingPoint will provide what Google doesn't have to take on those competitors. It is the largest service firm to hook up with Google and will focus on companies in pharmaceuticals, banking, brokerage, high-tech and aerospace.

"The idea is we sell a very general-purpose platform for search," says Dave Girouard, general manager for Google Enterprise. "The needs within different vertical industries and the different types of informa-

tion sources they need to access vary dramatically. You need to be pretty deep into those industries to have hands-on knowledge of all those data sources. BearingPoint will scope how those companies can best use search and implement a customized version of Google Search that works with their business." BearingPoint plans to focus on customizing and extending search services to specific industry platforms such as enterprise content management systems; building in access control and authentication integration with corporate identity management systems; and developing interfaces for specific deployments such as call centers or research labs.

"We have a search extension platform that we are using to develop the extension software, adapters and plug-ins that go with the Google appliance," says Chris Weitz, managing director of BearingPoint. "The software platform is external to the Google appliance and allows for this extra layer of customization." BearingPoint has yet to name the platform, but Weitz says it runs off a Linux or Solaris box and includes software that talks to the Google Search Appliance. The BearingPoint platform supports XML-based feeds from specific third-party systems, and aggregates information from structured and unstructured data stores.

"The idea here is that there are enterprise applications that are enormous and you do not want to crawl and index the entire thing," Weitz says. "Rather than open a floodgate, you need some intelligence that applies some logic or filtering or targeting to the data source so that you can get what you need without overwhelming the search engine."

Weitz says the software gateway is one of many technologies that will result from BearingPoint's efforts to provide customized search services. ■

Network security is the key to keeping VoIP networks secure

BY TIM GREENE

Despite warnings that VoIP is vulnerable to a new breed of attacks, the biggest threat remains weaknesses in general network security.

In a presentation at the RSA Conference 2006 last week, David Endler, chairman of the VoIP Security Alliance and director of security research for 3Com's TippingPoint division, said experts are aware of possible attacks that could be made against VoIP protocols, but worms, viruses and other exploits that take down servers or congest networks are the exploits that hurt VoIP in practice.

Analysis of IP voice components is key to keeping VoIP net-

works secure, he said. For instance, some IP PBXes are based on Windows, so any security flaws in Windows are security flaws in the voice network.

Customers also should check the management platforms of IP voice gear, Endler said. For example, some use TFTP protocol, which requires no authentication, so hackers could glean information about a VoIP network that may be valuable in itself or provide information for future attacks.

Some VoIP phones include packet capture features that are useful in tracing packets to analyze network performance. But in the wrong hands a network of

phones with this feature could be used to sniff networks for sensitive traffic such as passwords. "This could be a problem especially if the phones are connected to a hub," where they could view all traffic passing through, he said.

Logically segmenting VoIP traffic on its own virtual LAN can help keep it clear of attacks against data traffic, he said.

To protect VoIP networks, Endler recommends patching gear regularly against known threats, changing default passwords on all gear, following vendors' checklists for securing gear when installed, using intrusion-prevention gear and using VoIP-aware firewalls to protect IP PBXs. ■



APPLICATIONS

WI-FI

CONVERGENCE

NETWORK
MONITORING

VOIP

Where Can You Turn for a Total Solution?

As a total solutions provider, NEC understands the complexities today's converged networks can present to your business. With our proven experience, we know what it takes to help you avoid traveling in the wrong direction.

NEC delivers the most choices of IP communications platforms to meet the unique needs of your business. Add to that a strong portfolio of applications and services, and before you know it, your business is traveling in the direction of improved customer experience, enhanced employee productivity, increased revenue generation and maximum return on investment.

Why go in different directions when you can focus on a Total Solution? Turn to NEC!

www.necunified.com/ip

Health

continued from page 1

Corporation (CSC), IBM and Northrop Grumman to develop prototype architectures for the NHIN. Each consortium consists of technology developers, hospitals, laboratories, pharmacies and physicians who must prove that EHRs can be exchanged seamlessly among entities. The consortia are using existing collectives of hospitals and other healthcare providers called regional health information organizations (RHIO) to build these data-interchange networks.

"These prototypes are the key to information portability for American consumers and are a major step in our national effort to modernize healthcare delivery," Brailer said in a statement.

Brailer envisions the architecture of the NHIN to be such that existing RHIOs can connect to it, and organizations and physician

offices that are not part of an RHIO also will be able to connect.

"I did not start out by believing the national solution will be a network of regional networks," Brailer said in his keynote speech at HIMSS. "Our goal with the National Health Information Network is to allow those who do not want to participate in RHIOs to not have to do it."

Two networks — those proposed by Northrop Grumman and CSC — consist of distributed, peer-to-peer networks, which use a federated identity model that lets organizations share identity data with trusted network access and authentication. Patient information would be identified by unique metadata tags and be exchanged among organizations using standard protocols.

Foremost in IT professionals' minds in building these networks is how physicians will be reimbursed for adopting information technology. There also

IT in healthcare

A sampling of findings from the "HIMSS Leadership Survey" of 205 IT managers and CIOs.

- The top IT priorities are implementing technology to reduce medical errors and promote patient safety, and to deliver an electronic health record (EHR) system.
- Nearly 50% of the respondents indicate they have a fully functional EHR system in place, 36% are installing such a system and 25% have developed a plan to do so.
- 20% of respondents use single sign-on technology; 78% indicate that they plan to implement it in the next two years.

are technological issues about adopting EHRs and a nationwide health network that need addressing, such as a lack of recognized standards, the security and privacy of patient health information and the trusted access and authentication of clinicians to EHR information.

Dr. John Halamka, CIO for Harvard Medical School and chair of the Health Information Technology Standards Panel

(HITSP), is charged with dealing with one of these concerns by coordinating the standards for medical vocabulary and electronic data exchange.

"You say we have standards for credit cards, but what are the standards for electronic patient health information?" Halamka asked. "We talk about content standards for vocabularies, structural standards like [Health Level 7] and security standards such as [Security Assertion Markup Language]. Many people would agree that, because the network will use the Internet, HITSP would be a reasonable way to exchange information."

Part of HITSP's work will be deciding what standards to use — Digital Imaging and Communications in Medicine, HL7, .Net, SAML, Simple Object Access Protocol or XML. The committee is expected to deliver its recommendations as early as June.

Another concern is building out EHR systems to support this network. In an HIMSS survey released at the show, as many as half of the 205 respondents cited the lack of financial support as a barrier to deploying IT projects and systems. The top priorities are reducing medical errors and promoting patient safety, and implementing an EHR system. Over the next two years, 46% of the respondents indicated their top priority is implementing an EHR system.

Only one-fifth of the respon-

dents indicated they have implemented a single sign-on system to give one-step access to the multiple applications they use. Single sign-on is an essential component of an EHR system, users say.

"Single sign-on is one of the first things you need to address," says Linda Hill, manager for technical assistance at Sharp HealthCare, an 1,867-bed hospital collective in San Diego. "Then you need to look at the ownership of the information — who has it, who doesn't, what we control access to."

At Sharp, Hill says she has "made a tremendous amount of progress in getting all the hospital information on a patient in one place at one time. Now we are rolling out a system for our clinics and will have to deal with how we get that information to go back and forth." Hill uses Courion's Enterprise Provisioning Suite to do password synchronization among applications.

As for who will operate the NHIN, Brailer says the government will not. He envisions it being managed by a series of companies or service providers that offer access, authentication and connectivity.

"Companies will start offering competitive NHIN service offerings not unlike Verizon and T-Mobile offer cellular connectivity," Brailer says. "Electronic health records and connectivity could get packaged together."

Brailer also doesn't view NHIN as a client/server network like the network the Department of Defense has implemented for its military personnel.

NHIN is "a lightly brokered network that has an index that says data on this person is at this location," Brailer says. "That gets layered on with some very specific needs of brokered security. If we don't have any existing trust relationships [or federation], how do I know who to trust getting the data?" Brailer asks. ■

Convergence, wireless are fueling telecom spending

BY DENISE PAPPALARDO

The telecom slump may finally be over — users are spending more on telecommunications services and a new report released last week shows strong growth in network equipment, wireless devices, wireless services, Internet access, unified communications and conferencing.

The Telecommunications Industry Association's (TIA) 2006 Telecommunications Market Review and Forecast, which is the group's annual assessment of the industry, shows the U.S. telecommunications business overall grew 8.9% in 2005, to \$856.9 billion.

TIA President Matthew Flanigan says, "2005 was a strong year for the overall telecommunications industry. It seems the days of 2% to 3% growth like we saw in 2002 and 2003 respectively are behind us."

The report says that the U.S. telecom business will see double-digit growth in 2006, reaching \$944.7 billion; by 2007 it will reach \$1.2 trillion. TIA says companies moving to converged technologies, the consolidation of the service-provider market and rampant wireless usage all are fueling telecom growth.

The report states that in the enterprise "the long-heralded move to convergent technologies is now taking off." IP equipment and services are beginning to replace legacy technologies such as IP PBXs.

Last year corporate users spent \$3.2 billion on IP

Spending stats

The TIA predicts customer spending on telecommunications will grow to \$110.5 billion by 2007

Year	\$ in billions	% growth
2003	\$86.3	3.4
2004	\$92.0	6.6
2005	\$98.3	6.9
2006	\$104.5	6.3
2007	\$110.5	5.7

PBX gear, compared with \$859 million spent on legacy PBX equipment. IP PBX buying was up 22.4% compared with 2004 and is expected to reach \$4.8 billion by 2009.

The TIA report says that between 2004 and 2005 the number of wireless users surpassed the number of traditional wireline telephone users. This significant change is contributing to continued wireless services and equipment purchasing.

In 2005 there were 194.5 million wireless users and 172.1 million landline users in the United States.

In 2004 landline users, at 177.9 million, outnumbered wireless users, at 169.9 million.

In 2005 users spent \$118.6 billion on wireless services, such as cellular, paging and Wi-Fi, compared with \$103.3 billion in 2004. Users also spent \$15 billion on wireless devices, such as cellular phones, pagers and PDAs. That's up 22.6% from 2004, when users spent \$12.2 billion on wireless devices.

An uptick in fiber-optic service revenue is also contributing to growth and is a big change from the dark days of telecom. In 2001 fiber revenues reached \$14.1 billion, then headed downward in 2002 and 2003, to \$5.3 billion and \$4.2 billion, respectively. 2004 was the first year of improvement, with 2005 solidifying that growth. In 2004 fiber revenues jumped to \$6.8 billion, and in 2005 increased to \$9.5 billion. ■

nww.com

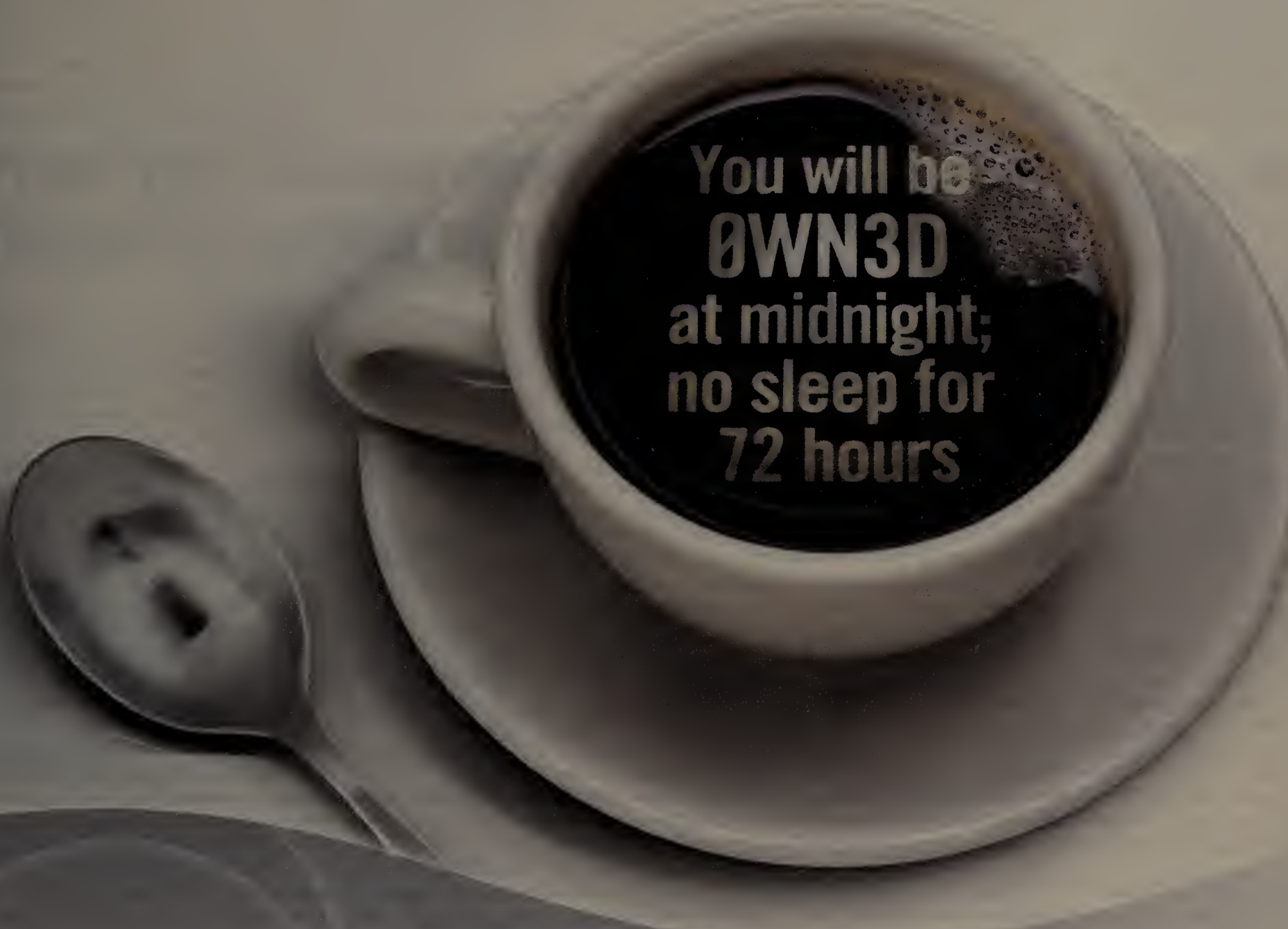
Questions about application acceleration?

Curious about the different approaches to speeding up those applications? We've invited Cisco, Citrix, Packeteer and Silver Peak to discuss their approaches. They'll be online the week of Feb. 27 to answer your questions — and we'll have a library of links to related papers. If you want to get a head start, however, send your WAN acceleration questions to agaffin@nww.com now, and the vendors will start working on answers.

Wake up!

PREEMPTIVE PROTECTION WILL

secure YOUR FUTURE.



You will be
0WN3D
at midnight;
no sleep for
72 hours

Proventia ESP



Proventia ESP (Enterprise Security Platform) from ISS stops Internet threats before they impact your network. With intrusion prevention and vulnerability assessment products and services, Proventia ESP gives you centralized control and enables network uptime. Only ISS keeps you ahead of the threat with preemptive protection to reduce your overall risk. Download a free white paper at www.iss.net/ESP/network, or call 1-800-776-2362.

 **INTERNET | SECURITY | SYSTEMS®**

Ahead of the threat.™

NETWORK & HOST INTRUSION PREVENTION | VULNERABILITY MANAGEMENT | MANAGED SECURITY SERVICES

RSA

continued from page 1

have a broad swath of security vendors in the anti-virus, patch management and endpoint security arenas cooperating to support a common framework that recognizes violations of security policy and restricts access until remediation takes place.

That Gates and Chambers were talking about separate frameworks was not lost on the audience. Microsoft and Cisco are fostering individual technology alliances to back their visions — with many vendors playing in both. Despite assurances to customers

approaches, including Lancope's StealthWatch appliance, to internally monitor for worm infections, spyware and intrusions.

In a conference session on network-access control, Gartner analyst Lawrence Orans alluded to the angst caused by the lack of news from Cisco and Microsoft as to how they will merge their technologies. The companies pledged in October 2004 that they would cooperate to ensure that NAP and NAC worked together. Orans invited panelists Khaja Ahmed, Microsoft software architect, and Russell Rice, Cisco's director of marketing, to clarify how far any joint effort has progressed.

Ahmed said NAP "will cause you to re-architect your network" and will "bind together two distinct groups," that today are largely separate — network and applications security. He also said "we don't have a committed road map" for any joint technology with Cisco and that the NAP effort was turning out to be more complex than once thought.

Rice said the work with Microsoft is ongoing.

NAC works for user

The enterprise customer on the panel, Frank Watts, senior architect in the IT risk-management division at JP Morgan Chase & Co., said he tested the Cisco NAC-based Trust software with LANs in a lab, and it did work to determine the need for Symantec anti-virus on desktops.

"It worked pretty much as advertised," said Watts, who added that JP Morgan Chase sees huge potential in using this type of endpoint security to identify risky or infected computers, quarantine them and get them up to speed quickly in terms of safety.

But Watts said the firm decided to wait for Cisco's Phase II NAC and is looking at a few alternatives, including software developed by Sygate, which was acquired late last year by Symantec. He said Sygate had been seen as a start-up that was more risky, but after Symantec bought Sygate its software (now called Symantec Policy Enforcer) was considered a viable possibility.

"I'm waiting for the market to mature," said another RSA attendee, Mark Butler, security services manager at H&R Block in Kansas City, Mo. He said taking a quarantine action against a desktop would be a significant

step with management implications that needed to be better understood.

Vendors seem to be making network-access control announcements every day. 3Com Chief Technology and Strategy Officer Marc Willebeek-LeMair, in his keynote address at RSA, outlined how 3Com's intrusion-prevention system, TippingPoint, is undergoing changes over the next few months so it will restrict access control and perform quarantine functions using Microsoft's upcoming NAP client, and perhaps other methods as well.

Willebeek-LeMair said there

should be an "open ecosystem" and a "framework" so "best-of-breed" technologies can work together.

Irrespective of what happens between Microsoft and Cisco, some security managers argue that quarantine of a desktop is radical and disruptive.

They say such a move will require a tough review by IT departments and business management before going forward with policy-based network-access control.

"You have to talk about what effects you have on the business," said Patricia Myers, chair of the

ISC2, the IT security professionals membership organization.

Quarantining endpoint devices "is going to have a considerable impact on end users, and you have to ask about the cost," she said. ■

nww.com

RSA roundup

Follow along with what Senior Editor Ellen Messmer saw at the RSA Conference in her daily blog.

DocFinder: 2256



Microsoft's Bill Gates shares his vision of security vendors working within a common framework that recognizes security violations.

more than a year ago that they would merge their efforts, that issue remains unresolved.

This uncertainty has contributed to widespread skepticism about both initiatives, known as Microsoft's Network Access Protection (NAP) — expected out with the Vista operating system later this year — and Cisco's Network Admission Control (NAC), currently in its first release of client software and support on Cisco gear.

"Conceptually, this is a fantastic idea," said conference attendee Keith Weisman, senior security engineer for OfficeMax in Itasca, Ill. "But I'm still generally skeptical. And we're also wondering what this is going to cost."

OfficeMax has turned to other

Businesses should pay more attention to software security

BY TIM GREENE

SAN JOSE — Most businesses aren't doing enough to build and buy securely written software, according to a panel of corporate security executives, academics and professional software developers speaking at the RSA Conference last week.

The problem stems in part from a failure to ask about how securely commercial software is written and failure to train in-house software developers to write applications that leave few vulnerabilities, said the panel that was drawn together by the Secure Software Forum, a group founded last year to promote applications that resist attacks.

The threat is enormous, according to Gartner, which says 70% of business security vulnerabilities are at the application layer. This is compounded by 64% of in-house business software developers admitting they lack confidence that they can write secure applications, according to research done by Microsoft, a sponsor of the forum.

But businesses need to do better, said Dave Cullinane, chief information security officer of financial firm Washington Mutual in Seattle Wash. "If you have an application exposed to the Internet that will allow people to make money, it will be probed," Cullinane said, and the consequences of being breached are not only financial but also damaging to the reputation of the company. "You will lose money; you will have problems. The reputation risk can literally put you out of business. Twenty percent to 45% of customers will leave you if you report a security breach."

When buying commercial software for business applications, corporate customers need to find out what architectural procedures the vendor followed and how stringently the software has been tested for weaknesses that can be exploited, the panel said.

This software review should include finding out where software is written — whether it is outsourced to other companies — and what the security parameters these consultants follow, the panel said.

In addition, businesses should train their in-house application developers in writing secure code. If

they have knowledge of security threats, they can defend against them when they write, the panel said.

In practice, very few companies do this, according to a survey of Fortune 1000 companies polled by the forum during seminars it held over the past year. Only 36% of those companies polled educate their software teams about security, and 30% said they have integrated security assurance programs in their software development process.

Panel member Caleb Sima, CTO of SPI Labs, agreed that education helps, but developers also need tools that flag potential flaws as the code is being written and can fix them automatically. The job of the developer should be to write applications that perform specified functions and accomplish the task in a set amount of time. They are not security experts, nor should they be.

Penny Lane, chief information security specialist for Visa in San Francisco, said developers don't have a good picture of the realm of threats at all different layers of the network, so they have trouble conceiving of the types of threats they should guard against.

Justin Peavey, vice president of security architecture and engineering for State Street in Boston, said developers should write applications according to sound principles that isolate the areas of code that represent risk so if a flaw is found, only a few lines of code need to be rewritten to fix it. "If the threat is distributed throughout the code, then it's impossible to find the vulnerability," he said.

Once code is written, it should be tested for flaws. This task may have to be performed by specially trained staff because normal quality assurance testers don't have the training to do the job, the panel said. ■

Correction

■ The story "Anti-virus vendors target network-access control" (Feb. 13, page 22) should have had the sources' names spelled GJ Desai and Jon Brody.

- ▶ See more coverage from the RSA Conference:
- CA set to tackle Web services security. Page 17.
- Experts say security products, implementations need to improve drastically. Page 17.
- Sophos unveils e-mail security appliance. Page 22.



Breakthrough Technology: Maximum System Performance – *Automatically*

INTRODUCING NEW

Diskeeper¹⁰

The Number One Automatic Defragmenter™

It's a known fact fragmentation cuts directly across the integrity of your systems causing crashes, slowdowns, freeze-ups and even total system failures.

NEW Diskeeper 10 provides new adaptive technology designed to wring every last drop of performance out of every computer on your network.

No more complaints from users waiting 50 seconds opening a Word document, 45 seconds saving a file or 70 seconds searching for one.* With Diskeeper's advanced automatic "Set It and Forget It"® technology, peak performance is maintained – automatically!

Diskeeper 10 "Set It and Forget It" Features

- **NEW! I-FAAST™** (Intelligent File Access Acceleration Sequencing Technology), breakthrough disk performance calibration technology that **boosts access speeds** for the most commonly accessed files.
- **NEW! Terabyte Volume Engine™** defrags large volumes, SANs, RAIDs and NAS, **quickly and thoroughly**.

- **NEW! Core enhancements** provide **faster, more thorough defragmentation**
- **NEW! Enhanced I/O Smart™** intelligently provides **transparent defragmentation** ensuring uninterrupted system operation.
- **EXCLUSIVE! "Set It and Forget It" scheduling** includes **SmartScheduling™** for fully customized and **automatic defragmentation** based on individual usage patterns.
- **NEW! Enhanced user interface** provides easy configuration and scheduling as well as reports on disk health, real time performance and fragmentation statistics.
- **NEW! Native 64 bit** operating systems support.

Every system on your network needs Diskeeper, The Number One Automatic Defragmenter with over 17 million licenses sold!

Volume licensing and Government / Education discounts are available from your favorite reseller or call 800-829-6468 code 4342

SPECIAL OFFER

TRY NEW DISKEEPER FREE FOR 45 DAYS!

Download: www.diskeeper.com/nw10

(Note: Special 45 day trial only available at above link)

*Windows® IT Pro, The Impact of Disk Fragmentation white paper



©2005 Diskeeper Corporation. All Rights Reserved. Diskeeper, The Number One Automatic Defragmenter, I-FAAST, I/O Smart, SmartScheduling, Terabyte Volume Engine, "Set It and Forget It", and the Diskeeper Corporation logo are registered trademarks or trademarks owned by Diskeeper Corporation in the United States and/or other countries. Windows is a registered trademark or trademark owned by Microsoft Corporation in the United States and/or other countries. Diskeeper Corporation • 7590 N. Glenoaks Blvd. Burbank, CA 91504 • 800-829-6468 • www.diskeeper.com

Active Directory gains broader role

BY JOHN FONTANA

Microsoft last week laid out a new road map for Active Directory designed to transform it into the centerpiece of the company's effort to provide users with an integrated identity management platform.

While the directory has been a core piece of Microsoft's identity infrastructure, it will become the platform for strong credentials, access control, single sign-on, federated identity, information-rights protection, process automation and auditing.

Microsoft plans to build that collection of identity technologies directly into the server operating system as part of Longhorn Server, which is slated to ship in 2007. The technologies will become installable features much like DNS is today in Active Directory. Beta 2 of the server, which includes the new identity features, is expected to be available before the end of June.

Experts say one of Microsoft's weaknesses has been lack of integration among its identity tech-

Active Directory makeover

Microsoft is integrating its lineup of identity technology into its Active Directory platform to provide users with a single infrastructure for controlling identity and access management.

New name	Former name	Description
Active Directory Domain Services	Active Directory Domain Controller	A server that hosts a single copy of Active Directory.
Active Directory Lightweight Directory Services	Active Directory Application Mode	A stand-alone directory that can be dedicated to a single application.
Active Directory Rights Management Services	Windows Rights Management Services	Digital rights management for documents and other files.
Active Directory Certificate Services	Windows Certificate Services	Platform for issuing, managing digital certificates.
Active Directory Metadirectory Services	Identity Integration Feature Pack	Engine for provisioning services.

nologies. That weakness has been highlighted over the last year as Microsoft competitors such as CA, IBM, Oracle and Sun have each integrated their technologies to create their own platforms.

"Pulling this together so that it is all integrated is the good news," says John Enck, an analyst with Gartner. "I worry, however, that this makes Active Directory seem too complex. I worry about them tak-

ing this too far. What's next, Active Directory Server 2007? Where do you end the platform and start the directory services or the identity management platform? They are not clear on that and I think that will confuse the market."

What is clear is that many of the services that rely on Active Directory for object or user data are now being renamed (see graphic) with the Active Directory tag.

Microsoft internally also has created an identity and access management group headed by company veteran Peter Houston.

Microsoft officials say the first wave of integration will be related to common set-up features and documentation.

Michael Stephenson, group product manager for Windows Server, says customers will be able to activate any of the new

Longhorn directory services without having to redeploy their entire Windows Server 2003 domain architecture.

Gil Kirkpatrick, CEO of an independent software vendor called NetPro, says, "We have seen the early code on this and it looks like they have the platform well defined."

The integration also supports Microsoft's Identity Metasystem initiative, which was unveiled last June and includes Active Directory along with user-centric privacy controls in the form of a client technology called InfoCard; a Longhorn middleware technology called Windows Communication Foundation (formerly Indigo); and a slate of Web services-based protocols.

Microsoft also announced the first beta of its Certificate Lifecycle Manager, policy and workflow-driven software acquired when it bought Alacris.

In addition, Microsoft says InfoCard will be supported in Internet Explorer 7.0. ■

Microsoft's Office 2007 includes new twists

BY JOHN FONTANA

Microsoft last week unveiled its Office 2007 package, which includes a collection of new applications, servers, bundles and licensing options for collaboration, content management and business intelligence.

The debut of Office 2007, which was code-named Office 12, also is the coming-out party for the real-time collaboration tools Microsoft acquired when it bought Groove in March 2005. The Groove offerings will include Office Groove 2007 and Office Groove Server 2007, as well as Microsoft hosted services — Groove Enterprise Services and Office Live Groove — that provide online Groove collaboration features.

Office 2007 also reveals that Microsoft intends to ride the popularity of its SharePoint Server by making it the centerpoint of its back-end collaboration infrastructure.

"Microsoft is emphasizing collaboration again," say Chris LeTocq, principal analyst with Guernsey Research. He says SharePoint presents an attractive option to today's cumbersome e-mail threads.

Microsoft has updated SharePoint Server, which was formerly called SharePoint Portal Server. The company says the server coupled with the two enterprise versions of Office 2007 provide a full collaboration

environment, including content management, routing/approval, electronic forms and search. Those two Office versions are the new Enterprise 2007 edition and the renamed Professional Plus 2007, which is the replacement for Office Professional Enterprise Edition 2003.

"This is the nod that SharePoint is the server we are going to put a lot of the collaboration work under," says John Carins, senior director of information worker licensing and packaging for Microsoft.

Carins says Microsoft expects a majority of corporate users to opt for the Professional Plus edition of Office and couple it with SharePoint Server.

He says Microsoft would discontinue its Content Management Server and fold the capabilities into SharePoint Server, which also is the back-end support for document routing and approval, electronic forms capabilities and search.

Office 2007 also features new bundles and applications, as well as some licensing options restricted to volume-licensing customers. One notable change is that the Student and Home edition of Office will drop Outlook in favor of OneNote, a note-taking program.

The new licensing options for Office 2007

will give customers with volume-licensing contracts exclusive access to the Enterprise and Professional Plus packages.

The main difference between the two bundles is the inclusion of Office Groove in the Enterprise Edition. Both will ship with the Office Communicator client for instant messaging and real-time communications, including VoIP.

Also, all the Office servers, along with the Communicator and Office Groove client software, are available only with volume-licensing contracts.

Another change is the new Office SharePoint Designer 2007, which will replace FrontPage 2003.

Office 2007 will include new server technology among the 13 new products available in the Office 2007 product family. New are the Microsoft Office Project Portfolio Server 2007, which provides project and portfolio management, and Microsoft Office Forms Server 2007, an electronic-forms platform.

Microsoft also is adding a client access license (CAL) option beyond its Core CAL. Core CAL includes access licenses for Windows Server, Exchange Server, Office SharePoint Server and Systems Management Server. The new Enterprise CAL adds

enterprise data searching, spreadsheet publishing, Web-based form creation and unified messaging. Enterprise CAL will enable access to features for Microsoft Operations Manager, Office Live Communications Server, Rights Management Services and Microsoft security software.

Also new is Office Communicator Web Access, a browser-based version of the IM client for the desktop.

Office 2007 is expected to ship by year-end, with pricing relatively unchanged from Office 2003. A beta 2 version of Office 2007 will be available before the middle of the year, according to Microsoft. ■

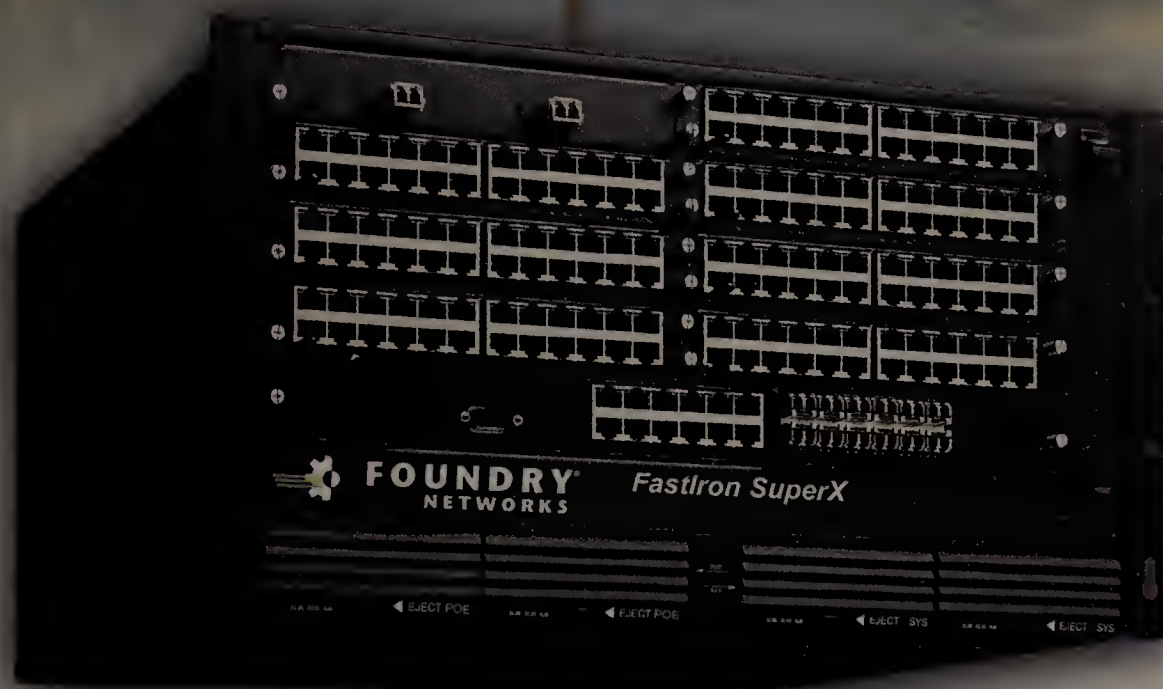
NEWS ALERTS

Hate hunting for stories on a specific topic? Let the news come to you with *Network World's* latest news alerts — with focuses on security, financials, standards, trade show news and vendor-specific news.

www.networkworld.com

Sign up today DocFinder: 1002

VOIP WITHOUT COMPROMISE



IF YOU'RE CONSIDERING VOICE OVER IP TELEPHONY, CONSIDER YOUR OPTIONS:
ONLY FOUNDRY NETWORKS GIVES YOU A TRUE VENDOR AGNOSTIC SOLUTION THAT
WORKS WITH THE EQUIPMENT YOU CHOOSE — OR ALREADY HAVE. SO WHETHER
YOU'RE USING AVAYA, SIEMENS, CISCO OR NORTEL, FOUNDRY NETWORKS GIVES
VOICE TO YOUR NETWORK!

Foundry's integrated Power over Ethernet- and Quality of Service-based switches deliver the most scalable, secure VoIP architecture, with the lowest latency and highest performance for both wired and wireless IP telephony. Foundry supports all the VoIP features you need, including automatic phone discovery, embedded endpoint security, dynamic L2-3 QoS support and wireless mobility. And only Foundry lets you select best-of-breed or low-cost IP phones, conferencing, PBX, and voice/media gateway solutions and be assured of full compatibility.

WANT VOIP? GET FOUNDRY. NO COMPROMISE.

VISIT US TODAY AT WWW.FOUNDRYNETWORKS.COM/VOIP

OR CALL US: 1 888 TURBOLAN

INTERNATIONAL: +1 408.586.1700



**FOUNDRY
NETWORKS**

The Power of Performance™

Foundry Networks, Inc. is a leading provider of high-performance Enterprise and Service Provider switching, routing and Web traffic management solutions including Layer 2/3 LAN switches, Layer 3 Backbone switches, Layer 4-7 Web switches, wireless LAN and access points, access routers and Metro routers.

© 2005 Foundry Networks, the Foundry logo, FastIron SuperX, The Power of Performance and Foundry are trademarks of Foundry Networks, Inc.
All other marks are trademarks of their respective owners.

Blade server switch market in flux

BY PHIL HOCHMUTH

While some network vendors are jumping out of the blade server market, others are expanding their reach into blade systems with new partnerships.

Nortel last week said it will spin off its Blade Server Switch Business Unit as the start-up Blade Network Technologies, which will focus solely on building network switches for blade chassis.

Also last week, Dell said it will start offering Cisco Gigabit Ethernet switch modules in its PowerConnect blade servers, in addition to Dell's own brand of blade server switches.

Observers say vendors' varying positions in the blade server market result partly from the debate over where network intelligence should reside — in servers or network gear.

Blade server switch modules typically offer four to 24 Fast or Gigabit Ethernet ports. The modules occupy a slot in a blade server chassis, providing interconnectivity for server blade nodes or connections to network devices outside the blade server chassis. This latter role is more prevalent, as server vendors integrate Ether-

The switch/blade fold

Ethernet technology vendors that are members of the Blade.org blade server special interest group include:

Company	Connectivity technology
Broadcom	Ethernet silicon and components
Intel	Ethernet silicon and components
Myricom	High-speed interconnects
Nortel	LAN switch blade models
Tehuti Networks	Ethernet silicon and components

net as the backplane fabric technology, connecting server blades internally in a self-contained LAN.

One expert says installing LAN switch blades into a blade server chassis is a logical continuation of the blade server's main role: consolidation.

"Instead of having lots of boxes

stacked up, you have one chassis in which you put in many CPU blades," says Dan Golding, a Burton Group analyst. "To tie together what are essentially computers, you need some kind of network backplane. That's what you get out of having an integrated Ethernet switch."

Analyst firms do not break out shipments of Ethernet ports as blade server switch modules, so the size of this sub-market is hard to gauge. Nortel says it has more than 52,000 blade server switches deployed. The blade server market as a whole is expected to reach \$10 billion by 2009, up from \$2 billion last year, IDC says.

Users say putting switches inside blade simplifies cable management and provides more options for server failover. IBM BladeCenter chassis used at the North Carolina Department of Revenue's data center have Nortel Layer 2/3 switch modules installed. The Nortel blade connects the server blades with redundant links. Dennis Fox, network specialist for the Department of Revenue, says this is a much easier configuration to manage than handling linking blades to an external LAN switch.

"You might as well just have racks of 1U [single-rack-unit] servers if you're going to do that."

While Nortel distances itself from the blade server market with its new spinoff, Cisco appears to be reaching for a hold in blade server chassis with its recent Dell partnership and last year's acquisition of TopSpin, which offers Fiber Channel storage blades for IBM blade servers.

Industry observers say converting network service modules into blade server cards would take away from network vendors' core business: selling large chassis filled with high-function line cards. Plus, switch vendors say customer demand is not there yet.

"When [customers] go to a large blade server implementation, they still prefer to have our box outside the blade chassis itself," said F5 Networks CEO John McAdam in a previous interview. F5 makes blades that run its load balancing, traffic acceleration and security features on blades for HP and IBM chassis. Our customers spent much more money on us with products that sit outside the blade chassis than inside," McAdam said. ■

Analysts: Juniper could be doing better

BY JIM DUFFY

BURLINGAME, Calif., — Juniper emphasized its laser-like focus as a core component of its success over the past 10 years — but attendees of the company's annual Analyst Day say it may have to defocus a bit in order to land more deals and regain market share.

Juniper kicked off its conference last week with press releases extolling its position as the overall No. 2 enterprise and service provider router vendor, behind longtime leader Cisco. One release, citing market share data from Synergy Research, boasted that Juniper has achieved an impressive 30% share in high-end enterprise routing.

But such back patting didn't sway skeptical analysts, who grilled company executives on share recently lost to Alcatel in carrier edge routing; Juniper's lack of systems integration expertise for hot new markets such as IP TV; the absence of Ethernet switching products for aggregation at the carrier edge; and expanding its presence in the enterprise market.

"They're growing revenue but losing business," said Ron Westfall, an analyst at Current Analysis. Product and proficiency gaps are "lessening its ability to close more deals."

Some of those deals are going to Alcatel, whose market share in IP edge aggregation routing has shot up from 9.2% in the second quarter of 2005 to 25.6% in the fourth quarter, according to Synergy Research. Alcatel has displaced Juniper as the No. 2 vendor in IP edge aggregation routing, Synergy says.

Analysts pointed to a three-pronged strategy for Alcatel's success: an Ethernet aggregation switch to couple with an IP service router for IP TV deployments; a deep IP TV partnership with Microsoft; and systems integration expertise to unite all the components of an IP TV buildout. They suggested Juniper will have to attain — or obtain — similar capabilities in order to compete with Alcatel and the recent marriage of Cisco and Scientific-Atlanta for multibillion-dollar IP TV deals.

Juniper countered by saying that the two largest IP TV networks in the world are deployed by service providers PCCW and FastWeb, both of which are Juniper M-series and E-series router customers. Those products are therefore "the most production proven" for IP TV applications, said Judy Beningson, vice president of strategy and planning for Juniper's service provider business.

Juniper espouses an IP video architecture that relies more on the dynamic bandwidth allocation capabilities of a router — Juniper's E320 router — than on the static assignments of Gigabit Ethernet aggregation switches. But when asked for a status report on the E320's traction in the market, Perdikou said only that the router is "solid" and "takes a long time" to penetrate the market.

Analysts noted that Juniper partner Lucent's intention to acquire the assets of metropolitan Ethernet router vendor Riverstone underscored the hole in Juniper's product line. Lucent resells Juniper routers but partnered with Riverstone last year for carrier voice, video and data over a single telephone line, or triple play, opportunities because Juniper lacked Ethernet switching and its low prices.

Juniper dismissed the perception that it needed Ethernet switching and aggregation products to better compete in the triple play/IP video opportunities.

"Ethernet is not an architecture," said CEO Scott Kriens. "Ethernet is an interface. Source and destination intelligence [housed in routers] will be increasingly accessed through Ethernet interfaces." ■

NETWORKWORLD

EDITORIAL DIRECTOR: JOHN GALLANT
EDITOR IN CHIEF: JOHN DIX

NEWS

EXECUTIVE EDITOR, NEWS: BOB BROWN
NEWS EDITOR: MICHAEL COONEY
NEWS EDITOR: PAUL MCNAMARA

NET INFRASTRUCTURE

SENIOR EDITOR: JOHN COX (978) 834-0554
SENIOR EDITOR: TIM GREENE
SENIOR EDITOR: PHIL HOCHMUTH
SENIOR EDITOR: ELLEN MESSMER (941) 792-1061

ENTERPRISE COMPUTING

SENIOR EDITOR: JOHN FONTANA (303) 377-9057
SENIOR EDITOR: DENI CONNOR (512) 345-3850
SENIOR EDITOR: JENNIFER MEARS (520) 818-2928

APPLICATION SERVICES

SENIOR EDITOR: CAROLYN DUFFY MARSAN, (317) 566-0845
SENIOR EDITOR: ANN BEDNARZ (612) 926-0470
SENIOR EDITOR: DENISE DUBIE
SENIOR EDITOR: CARA GARRETSON (240) 246-0098

SERVICE PROVIDERS

SENIOR EDITOR: DENISE PAPPALARDO, (703) 768-7573
MANAGING EDITOR: JIM DUFFY (716) 655-0103

NET.WORKER

MANAGING EDITOR: JOHN DIX

COPY DESK/LAYOUT

MANAGING EDITOR: RYAN FRANCIS
SENIOR COPY EDITOR: JOHN DOOLEY
COPY EDITOR: TAMMY O'KEEFE
COPY EDITOR: BOB SPRAGUE
COPY EDITOR: CAROL ZARROW

ART

DESIGN DIRECTOR: TOM NORTON
ART DIRECTOR: BRIAN GAIDRY
SENIOR DESIGNER: STEPHEN SAUER
ASSOCIATE DESIGNER: ERIC ANDERSON

FEATURES

FEATURES EDITOR: NEAL WEINBERG
SENIOR MANAGING EDITOR, FEATURES: AMY SCHURR
OPINIONS PAGE EDITOR: SUSAN COLLINS

CLEAR CHOICE TESTS

EXECUTIVE EDITOR, TESTING: CHRISTINE BURNS, (717) 243-3686
SENIOR EDITOR, PRODUCT TESTING: KEITH SHAW, (508) 490-6527
LAB ALLIANCE PARTNERS: JOEL SNYDER, Opus One; JOHN BASS, Centennial Networking Labs; BARRY NANCE, independent consultant; THOMAS POWELL, PINT; Miercom; THOMAS HENDERSON, ExtremeLabs; TRAVIS BERKLEY, University of Kansas; DAVID NEWMAN, Network Test; CHRISTINE PEREY, Perey Research & Consulting; JEFFREY FRITZ, University of California, San Francisco; JAMES GASKIN, Gaskin Computing Services; MANDY ANDRESS, ArcSec; RODNEY THAYER, Canola & Jones
CONTRIBUTING EDITORS: DANIEL BRIERE, MARK GIBBS, JAMES KOBELUS, MARK MILLER

NETWORKWORLD.COM

EXECUTIVE EDITOR, ONLINE: ADAM GAFFIN
MANAGING EDITOR: MELISSA SHAW
SITE EDITOR: JEFF CARUSO, (631) 584-5829
ASSOCIATE ONLINE NEWS EDITOR: LINDA LEUNG, (510) 768-2808
MULTIMEDIA EDITOR: JASON MESERVE
SENIOR ONLINE COPY CHIEF: SHERYL HODGE
SENIOR ONLINE GRAPHIC DESIGNER: ZACH SULLIVAN

SIGNATURE SERIES

EDITOR: BETH SCHULTZ, (773) 283-0213
EXECUTIVE EDITOR: JULIE BORT (970) 482-6454
COPY EDITOR: TAMMY O'KEEFE

EDITORIAL OPERATIONS MANAGER: CHERYL CRIVELLO
OFFICE MANAGER, EDITORIAL: GLENNA FASOLD
EDITORIAL OFFICE ADMINISTRATOR: PAT JOSEFEK
MAIN PHONE: (508) 460-3333
E-MAIL: first_name_last_name@nww.com



STORAGE NETWORKING WORLD

COMPUTERWORLD

April 3-6, 2006

Manchester Grand Hyatt
San Diego, California

Learn How to Achieve Storage Networking Success



Featured Speakers Include:



JERRY BARTLETT
Chief Information Officer, TD Ameritrade



GREG BRANDEAU
Vice President of Computer Operations,
Pixar Animation Studios



DAVE DULLY
Chief Technology Officer, Baptist Health



DALE FRANTZ
Chief Information Officer, Auto Warehousing



DENNIS L'HEUREUX
Senior Vice President for Planning
& Chief Information Officer,
Rockford Health System

See End-User Case Studies From:

- Yahoo!
- Warner Bros. Entertainment
- Hartz Mountain Industries
- Bay Cove Human Services
- Ruden McClosky
- Community Connect, Inc.
- DXP Enterprises, Inc.
- Hannaford Bros.

The Leading Conference for:

- IT Management
- Storage Architects
- IT Infrastructure Professionals
- Business Continuity Planning Experts
- Data Management Specialists
- Network Professionals

Storage Networking World Spring 2006 sponsors include:

as of 2/6/06

PLATINUM SPONSORS



GOLD SPONSORS



CONTRIBUTING SPONSORS



MEDIA SPONSORS



PRE-CONFERENCE GOLF OUTING SPONSOR

Quantum

PLATINUM PARTNER PAVILLION SPONSORS



Co-Owned and Endorsed by



Co-Owned and Produced by
COMPUTERWORLD

To register now or for more information, visit www.snwusa.com/nww

For sponsorship opportunities, call Ann Harris at 508-820-8667 or Amy McLellan at 508-820-8518



"... provides a road map to where things are going ..."



Ralph C. Barber
Chief Technology Officer,
Holland & Knight LLP



**STORAGE
NETWORKING
WORLD**

COMPUTERWORLD

Co-Owned and Endorsed by



Co-Owned and Produced by
COMPUTERWORLD

Learn How to Achieve Storage Networking Success

- Get a Contemporary Overview of Today's Storage Networking Issues and Opportunities
- See How to Implement and Deploy the Latest in Storage Networking Technologies
- Hear the Latest in Enterprise Security
- Learn from Best Practices and Case Studies

Why You Should Attend

Are you responsible for managing your company's data center assets? Want to exchange innovative ideas and strategies with other executives who share the same objectives? Then attend Storage Networking World, where you'll network with and learn from renowned experts and the nation's top user executives.

What You'll Learn

In this executive-forum setting, you'll hear directly from executives and managers in user companies. They'll address a wide variety of today's burning issues like:

- Selecting and Deploying Storage Networks
- Advancing the Data Center and its Infrastructure
- Storage Security
- Managing Storage Networking Technology
- Enterprise Business Applications and Databases
- Deploying and Managing Storage Networking Solutions to Meet Industry Regulations
- CXO Insights
- Managing Deployment of Existing and Emerging Technologies
- Critical and Emerging Technology Topics
- High Performance Data Storage Applications
- Deploying and Managing Storage Networking for Small/Medium Business



See SNW's Solutions Center

No other storage event gives you:

- SNIA member companies and systems integrators collaborating on integrated technology and business application solutions. New in April: "Technology Showcase"
- The opportunity to meet leading experts and engineers
- Featuring "Hands On Lab" Program



Storage Analyst Briefing

In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.

For more information and to register, visit www.snwusa.com/nww or call 1-800-883-9090

Conference At-a-Glance (subject to change)

For details, updates, and to register visit www.snwusa.com/nww

MONDAY, APRIL 3

Registration Open 8:00am - 7:30pm

- 9:30am - 11:55am Concurrent Sessions (Primer, Career Development, SNIA Tutorials, etc.)
- 11:55am - 1:00pm Luncheon
- 12:00pm - 5:00pm Pre-Conference Golf Outing
- 1:00pm - 5:25pm IDC Analyst Briefing
- 1:00pm - 5:25pm Concurrent Sessions (SNIA Tutorials, End-User Case Studies, etc.)
- 4:40pm - 6:15pm End User Town Hall Meeting
- 5:00pm - 7:00pm Speed Dating with IDC: A Channel Partner Networking Event at SNW
- 7:00pm - 9:00pm Welcome Reception

TUESDAY, APRIL 4

Registration Open 7:00am - 7:00pm

- 7:00am - 8:00am Breakfast
- 8:00am - 12:30pm General Conference Sessions
- 12:45pm - 2:00pm Luncheon
- 2:10pm - 5:40pm Concurrent Sessions (SNIA Tutorials, End-User Case Studies, etc.)
- 5:40pm - 8:40pm Expo with Dinner and Solutions Center

WEDNESDAY, APRIL 5

Registration Open 7:00am - 6:30pm

- 7:15am - 8:15am Breakfast
- 8:15am - 12:15pm General Conference Sessions
- 12:15pm - 2:00pm Expo with Luncheon
- 12:15pm - 7:15pm Solutions Center Open
- 2:10pm - 5:40pm Concurrent Sessions (SNIA Tutorials, End-User Case Studies, etc.)
- 4:00pm - 7:00pm Expo and Solutions Center Open
- 7:00pm - 9:30pm Gala Evening with Dinner and Entertainment
- 9:30pm - 11:00pm Post-Gala Reception

THURSDAY, APRIL 6

Registration Open 7:30am - 10:00am

- 7:30am - 8:30am Breakfast
- 8:30am - 12:00pm Concurrent Sessions (SNIA Tutorials, End-User Case Studies, etc.)
- 12:00pm Conference Concludes

"... a high quality, low fluff conference..."



Jay Brummett
Chief Technology Officer,
Information Technology,
CIO of Ogden, Utah



**Attend SNIA-Certified
Training Programs at SNW**



**The Steele Canyon
Golf Club**
Yamul, California

Pre-Conference Golf Outing Complimentary for Registered IT End-Users

The Pre-Conference Golf Outing at The Steele Canyon Golf Club, is complimentary for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details contact Duncan Newell at 1-508-271-8029

Sponsored by:

Quantum



Manchester Grand Hyatt
San Diego, California

Hotel Reservations and Travel Services

Global Odysseys is the official travel company for Storage Networking World. They are your one-stop shop for exclusive discounted rates on hotel accommodations.

To reserve your accommodations, visit: www.etcentral.com

You can also call our conference housing line at: 1-888-254-1597

Global Odysseys
Meetings & Incentives

April 3-6, 2006 • Manchester Grand Hyatt • San Diego, California



STORAGE NETWORKING WORLD

COMPUTERWORLD

April 3-6, 2006
Manchester Grand Hyatt
San Diego, California

Application for Conference Registration

Fax this completed application to 1-508-820-8254 or apply online at www.snwusa.com/nww

Your business card is REQUIRED to process your application

Please affix your business card to this space prior to submitting your application. Applications submitted without business cards will not be processed.

Questions? Call 1-800-883-9090

If not indicated on your business card, please provide the following required information:

Corporate Email Address

Corporate Website

Registration questions?

Call 1-800-883-9090 or email
snwreg@computerworld.com

Need accommodations?

Reserve them at: www.etcentral.com
Or call 1-888-254-1597

or email: eventhousing@globalodysseys.com

Please check ONE of the following:

☐ **I am an IT End-User***
(Complete Attendee Profile below)

Earlybird Registration (through February 20, 2006)

☐ **\$1,290** General Conference Package
(includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

Full/Onsite Registration (after February 20, 2006)

☐ **\$1,690** General Conference Package
(includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld.

Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

Your Business/Industry

- ☐ Non-Tech: Advertising/Marketing/PR/Media (Publishing, Broadcast, Online)
- ☐ Non-Tech: Agriculture/Forestry/Fisheries
- ☐ Non-Tech: Education
- ☐ Non-Tech: Finance/Banking/Accounting
- ☐ Non-Tech: Government - Federal (including Military)
- ☐ Non-Tech: Healthcare/Medical/Pharmaceutical/Bio-Tech
- ☐ Non-Tech: Insurance/Real Estate/Legal
- ☐ Non-Tech: Manufacturing & Process Industries
- ☐ Non-Tech: Mining/Oil/Gas
- ☐ Non-Tech: Retailer/Wholesaler/Distributor
- ☐ Non-Tech: Transportation/Utilities (Energy, Water, etc.)
- ☐ Non-Tech: Travel/Hospitality/Entertainment/Recreation
- ☐ Non-Tech: Other
- ☐ Tech: Communication Carriers (ISP, Telecom, Data Comm Cable)
- ☐ Tech: Manufacturing - Hardware/Software
- ☐ Tech: Service Provider (MSP, BSP, ASP, ESP, Web Hosting)
- ☐ Tech: Other

Your Job Title/Function:

- ☐ IT Management: CIO, CTO, CSO
- ☐ IT Management: Director
- ☐ IT Management: Manager
- ☐ IT Management: Technical Consultant
- ☐ IT Management: VP
- ☐ Business Management: CEO, COO, Chairman, President
- ☐ Business Management: Other Corporate, Business Manager
- ☐ Other: Non-Manager

What is the one item that best describes your involvement in the IT purchase process?

- ☐ Authorize/Approve Purchase
- ☐ Set Budget for Expenditures
- ☐ Evaluate/Recommend Products, Brands
- ☐ Determine Need to Purchase
- ☐ All of the above
- ☐ None of the above

Number of employees in your entire organization (ALL locations)

- ☐ Over 20,000
- ☐ 10,000 - 19,999
- ☐ 5,000 - 9,999
- ☐ 1,000 - 4,999
- ☐ 500 - 999
- ☐ 100 - 499
- ☐ 50 - 99
- ☐ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?

- ☐ \$1 Billion or more
- ☐ \$500 to \$999.9 Million
- ☐ \$100 to \$499.9 Million
- ☐ \$50 to \$99.9 Million
- ☐ \$10 to \$49.9 Million
- ☐ \$1 to \$9.9 Million
- ☐ \$500,000 to \$999,999
- ☐ \$250,000 to \$499,999
- ☐ \$100,000 to \$249,999
- ☐ Under \$100,000
- ☐ None

What is the estimated annual revenue of your entire organization?

- ☐ Over \$10 Billion
- ☐ \$1 Billion - \$9.9 Billion
- ☐ \$500 Million - \$999 Million
- ☐ \$100 Million - \$499 Million
- ☐ Less than \$100 Million

Would you like to receive information about playing the golf outing on Monday, April 3rd?

- ☐ Yes
- ☐ No

Do you need hotel accommodations?

- ☐ Yes (please visit www.etcentral.com to reserve)
- ☐ No

Would you like to receive a complimentary subscription to Computerworld?

- ☐ Yes
- ☐ No

Signature

☐ **I am a Channel Partner/Integrator/Consultant**
(Complete Attendee Profile above)

☐ **\$3,000** General Conference Package (through 2/20/06)
(includes General Conference; Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

☐ **\$3,500** General Conference Package (after 2/20/06)
(includes General Conference; Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

By participating in SNW's Channel Partner/Integrator registration package, registrants may enjoy the following benefits: One company representative may receive a full conference pass to SNW Spring 2006; additional company representatives pay the prevailing rate for full conference passes; company may invite up to five IT User customers to attend SNW Spring (IT Users must be strictly compliant with IT User definition on the supplied registration form).

☐ **My company is Sponsoring/Exhibiting at SNW**

☐ **\$1,290** General Conference Package (through 2/20/06)
(includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

☐ **\$1,690** General Conference Package (after 2/20/06)
(includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)

As a sponsor, you may be eligible to attend using a registration provided with your sponsorship. (If those registrations have already been assigned/used, then you may register at the prevailing rates above. See the current list of sponsors at www.snwusa.com. Questions? Call 1-800-883-9090 or email snwreg@computerworld.com.

☐ **I am a representative of a Non-Sponsoring IT Vendor Company**

☐ **\$5,000 Business Development Professional Package** for Sales, Marketing and Business Development Professionals (includes General Conference Sessions, Expo, Meals & Receptions)

Vendors are encouraged to participate in Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 508-820-8667.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate of \$5,000. Determination of what constitutes a "non-sponsoring vendor" registration is made exclusively by Computerworld. Please call 888-239-4505 with questions.

☐ **I am a Financial/Equity Analyst and/or Venture Capital Professional**

☐ **\$1,290** (through February 20, 2006)
General Conference Package
(includes General Conference Sessions, Expo, Meals & Receptions)

☐ **\$1,690** (after February 20, 2006)
General Conference Package
(includes General Conference Sessions, Expo, Meals & Receptions)

☐ **I am a qualified member of the press.** I can verify my press credentials.
Press should call Lisa Langsdorf at Trylon Communications, 212-725-2295, to register.

Payment Method

☐ Check

(checks must be received by March 13, 2006 payable to: Computerworld)
Mail to: Computerworld, Attn: Josh Ryan, One Speen Street, Framingham, MA 01701

☐ American Express ☐ VISA ☐ MasterCard

Account Number: _____

Expiration Date: _____

Card Holder Name: _____

Signature of Card Holder: _____

Cancellation Policy (All of the following require written notification by March 13, 2006.)

In the event of cancellation, the registrant has three options:

- 1) He or she may substitute another attendee for this conference.
 - 2) He or she may transfer this registration to the Storage Networking World Fall 2006 conference.
 - 3) The registration fee will be refunded, less a \$250 service charge (if written notice is received by March 13, 2006).
- Please send cancellation requests via email to: snwreg@computerworld.com

Please fax this completed application to 1-508-820-8254

NET INFRASTRUCTURE

■ SECURITY ■ SWITCHING ■ ROUTING ■ VPNS ■ BANDWIDTH MANAGEMENT ■ VOIP ■ WIRELESS LANS

Short Takes

■ **Aventail** last week rolled out an SSL VPN package for Macintosh and Linux platforms. **Aventail Connect Tunnel for Mac and Linux** gives Macintosh and Linux users two secure, remote access options: Connect Tunnel, a lightweight agent for network application access and workplace access; and clientless browser access for Web applications and file share access. The package supports a range of Macintosh and Linux browsers, including Safari, Firefox, Mozilla and Microsoft Internet Explorer. The full release is scheduled to be available in the second quarter as software upgrades for existing hardware products. A preview release is scheduled to be available later this month. These access options are included in the base license price of the EX-2500 and EX-1500, Aventail's enterprise-class appliances. For the EX-750, Aventail's SSL VPN appliance for small and midsize businesses, Connect Tunnel is an add-on starting at \$995.

■ **ConSentry** announced last week its LAN-access protection appliance works with Cisco and Check Point schemes for scanning computers before they gain access to networks to make sure they are configured to meet security policies. With a new release of Secure LAN Controller software, the ConSentry devices will support Cisco's Trust Agent, which reads whether PCs are running updated anti-virus software from Network Associates, Symantec and Trend Micro. This is part of Cisco's Network Admission Control program to limit or deny network access to endpoints that fail corporate configuration standards. For an extra fee, ConSentry's LANShield 2.0 software will also support Check Point's Integrity software, which sends a Java agent to remote machines to scan for anti-virus software, critical patches, updated versions of programs and prohibited programs. It can deny access if a PC is found noncompliant. Support for Integrity in LANShield 2.0 costs \$3,000 per appliance.

Security issues debated

Experts say security products, implementations need to improve drastically.

BY CARA GARRETSON

A panel discussion involving a group of experts held during Demo '06 in Phoenix earlier this month concluded that the state of security is not where it should be. Luckily, the panelists also had suggestions on how to improve it.

During the conference, which is owned by *Network World*, former IBMer and consultant John Patrick called together a panel of industry and academic figures to answer the question: Will the good guys be able to stay ahead of the bad guys? But first Patrick asked the panel to assess the current state of security, and the responses showed that the good guys aren't necessarily ahead of the bad guys.

"The state of security is terrible . . . absolutely abysmal," said Hilarie Orman, former research scientist and one-time member of Defense Advanced Research Projects Agency's Information Technology Office. She now is CTO and vice president of engineering with Shinkuro, which makes file-sharing software. "It's difficult to argue there's a good state of security right now."

Another panelist reminded the audience that there's no such thing as perfect security. "It's a cat and mouse game [that the industry plays with hackers], but we need to bring [the threat] down to a level where we can live with it," said Partha Dasgupta, an associate professor with Arizona State



At Demo '06, moderator John Patrick, far left, discussed the state of security with panelists Partha Dasgupta, Hilarie Orman and Charles Palmer.

University's Fulton School of Engineering.

The good news, according to the third panelist, is at least the industry and users are beginning to think about security. Enterprise and consumer products need to find a balance between being secure and

being useful, said Charles Palmer, manager of the security, networking and privacy departments at IBM's Thomas J. Watson Research Center.

"If [security] makes the system really hard

See Security, page 18

CA set to tackle Web services security

BY ROBERT MCMILLAN, IDG NEWS SERVICE

CA is readying software designed to help secure and manage systems using Web services software.

The product, expected by the middle of this year, will fuse the company's eTrust Transaction Minder and Unicenter Web Services Distributed Management (WSDM) software, and will add new features to enhance XML security, says Toby Weiss, senior vice president and general manager of CA's Security Management business unit.

Code-named Project SOA, the software has been in development for nine months. CA will probably work with other companies to deliver it in a preconfigured hardware appliance, Weiss says. "We're definitely going to have a software

version, and we're working with some hardware partners now," he says.

CA has already integrated its Web services products with appliances from vendors such as Layer 7 Technologies and Forum Systems.

With companies beginning to bring Web services online, customers are looking for tools that can help them thwart potential attacks and ensure that the Web services are used only by authorized users and applications, says Jason Bloomberg, a senior analyst with ZapThink.

"The Unicenter WSDM product is a reasonably mature product for Web services management, and Transaction Minder was gaining some traction in the Web services security space at the time that CA acquired Netegrity," Bloomberg says.

"These are the two leading SOA products that CA offers, so it makes sense for them to be together."

CA completed its \$400 million purchase of software vendor Netegrity in November 2004, and has been working since then to integrate the company's identity management products with the rest of its product line.

Project SOA fits into CA's broad plan to extend its management products to help IT managers set security policies, Weiss says.

"Web services are coming on the scene in a major way. All companies are implementing them in some form or another. Even if they don't know it, they're buying software off the shelf that's implementing Web services." ■



TOLLY ON TECHNOLOGY

Kevin Tolly

Space invaders: You and WIPS

LANs (WLAN).

And, although the attackers' goals are the same, the nature of WLANs means radically different approaches are required to protect those LANs. Furthermore, there is no consensus among vendors on what those approaches should be.

To make an effective buying decision for wireless IPS you need to understand both the challenges and the possible solutions.

Compared with the job that wireless IPSs have to handle, their wired brethren have it easy. Wired IPS devices intercept traffic as it attempts to cross the perimeter of the network. There is no question about where the intrusion attempt originated. The IPS knows exactly which port the traffic came in on. Similarly, stopping the intrusion is simply a matter of filtering out — discarding — the traffic deemed to be a threat.

A key enabler of WLAN intru-

It is only recently that vendors have begun delivering products to help deal with intrusions carried out over wireless LANs.

sion is the rogue access point. This is a normal access point that has been plugged into the network by someone other than the IT department. Once in place, not only can unauthorized WLAN devices inside the company interact with the corporate LAN, but so can other WLAN devices within signal range outside the company.

Thus, rooting out rogue access points is typically Job No. 1 for most wireless IPSs. Consequently, that task became Test No. 1 of a recent vendor-commissioned validation study.

The study revealed that the ability of a wireless IPS to detect rogues is influenced by whether they are on the same or different virtual LANs as the

wireless IPS, whether Wired Equivalent Privacy is on or off, and a host of other factors. Rogue access point detection is not just a yes- or no- item on a checklist.

Once rogue access points are detected, it is a challenge to isolate and remove clients because the wireless IPS is not in the physical data path of the access point.

The wireless IPS typically has to send the equivalent of reset commands to attempt to disconnect the intruding users of the rogue access point from the network. No IEEE committee dictates how this is to be done. Vendors do it differently and with different levels of effectiveness.

Access points connected out-

side the confines of the corporate environment can represent an equally potent risk. XP's WLAN "Zero config" feature lets machines automatically seek out an accessible access point and begin communications without configuration.

Should a legitimate corporate client "mis-associate" with an access point outside the corporate network, the wireless IPS needs to spring into action. It wouldn't take long for sensitive information to flow across that connection and be swiped by a hacker.

This situation points to the need for a wireless IPS even if you haven't implemented WLANs internally, because all of your new notebooks have built-in wireless.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Security

continued from page 17

to use or is done wrong, you've got a brick," he said.

One possible solution to the recent rash of identity theft is biometrics, in which computers scan a finger, face, retina or other part of the body and save that image for authentication. The problem with biometrics, agreed the panel, is that once a thief learns how to reproduce a fingerprint, the owner can't change the original.

Technology is being developed that doesn't take a picture of the finger but some small measurements of the finger's characteristics, said Palmer, who added that 4% of people can't produce good fingerprints and that pineapple juice can temporarily remove a person's fingerprint.

Another promising area is challenge-

response biometrics, Dasgupta said. Instead of matching a spoken word or phrase to one previously recorded, the phrase is changed every time so a thief can't record the phrase and replay it over and over to gain access to protected data. "That's much more sophisticated, and much more complicated," he said.

Fingerprint biometrics are the best bet at the moment because the technique has been in practice the longest, Dasgupta said.

Another technology that can help improve security is encryption, the panelists agreed. However, most people don't know how to use it and even when it is employed it is poorly managed, Orman said.

"Encryption does protect data," Orman said. "The weak point in this is almost always key management. Even when data's been encrypted someone can find the key, since key selection and protections is so bad. . . . Usually the key is lying around somewhere."

"The problem is at the endpoints," Dasgupta added. "When you're using encryption, you have to encrypt at one end and decrypt at the other."

Another point of agreement among panel members was that security needs to be part of an application or operating system from the beginning — not an add-on or afterthought.

"We continue to build systems without thinking about security from the beginning," Palmer said.

"What developers really want is [a tool

that] looks at code and tells you if it's evil, and that's impossible," Palmer added.

"All code is evil, let's face it," Orman retorted, drawing chuckles from the audience. "It's been interesting watching the evolution of network security protocols; it's very difficult to change them" at this point, she said.

Patrick asked the panel if mobile devices were a particularly high security risk. Technically speaking they're not, the panel said, but it's the way people use them today that creates vulnerabilities. Good security "requires you to take your BlackBerry and type your password in every time you open it," Palmer said. ■

Internet Security Systems bolsters monitoring family

BY GRANT GROSS, IDG NEWS SERVICE

Internet Security Systems last week announced a group of products designed to identify points of failure and compromise on networks and to respond quickly to network changes without a need for extensive network administrator interaction.

The Proventia Network Anomaly Detection System uses an integrated group of analysis engines to monitor networks. The system lets network administrators monitor critical services closely, shut down unused or unauthorized ports, and segment networks to prevent the spread of worms, ISS says.

The Proventia Network Anomaly Detection System can be used as a stand-alone ISS product or as an integrated component of ISS' enterprise security platform, the company announced at the RSA Conference

2006 in San Jose.

ISS also announced the Proventia Network Enterprise Scanner, designed to move the company's product line from vulnerability assessment to complete vulnerability management and protection. The Proventia Network Enterprise Scanner offers customers automatic and continuous vulnerability scanning, including a set of workflow and reporting tools.

The scanner is an easy-to-install appliance with a simple graphical user interface, ISS says.

ISS also unveiled a new hardware design for its intrusion-prevention technology. ISS' new Proventia Network Intrusion Prevention System is designed to be easier to use for network administrators and marks the company's transition to custom-built appliance platforms, the company says. ■

www.com

The road to better security

Looking for better security solutions? Need an integrated strategy? Attend a *Network World IT Road Map* event coming to Boston, Chicago, Dallas and the Bay Area. One day, six tracks and 40 IT all-stars, analysts, vendors and user case studies ready to work for you. Qualify to attend free.

DocFinder: 2024

Identity Driven Manager

Switch

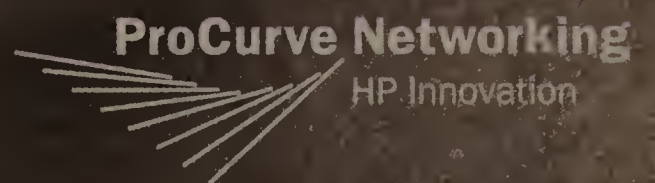
from managing devices
to managing users

A secure, predictable, high-performing network is smart enough to know exactly who its users are whenever or wherever they connect. It provides the right security and performance settings for appropriate access and greater network performance. This fundamental shift in network management is possible using Identity Driven Manager's groundbreaking technology—built to optimize ProCurve's industry-leading Adaptive EDGE Architecture.[™] IDM makes networks more secure while increasing user productivity.

To view an informative video on Identity Driven Manager and ProCurve network management, visit www.hp.com/go/procurveidm3 or call (800) 975-7684 Ref. Code 203.



©2006 Hewlett Packard Development Company, L.P.



ENTERPRISE COMPUTING

■ WINDOWS ■ LINUX ■ UNIX ■ SERVERS ■ STORAGE ■ GRID/UTILITY ■ MOBILE COMPUTING

Users weigh Exchange mobile messaging

BY JOHN COX

Wary network administrators are starting to evaluate the mobile-messaging capability rolled out by Microsoft via Exchange Server.

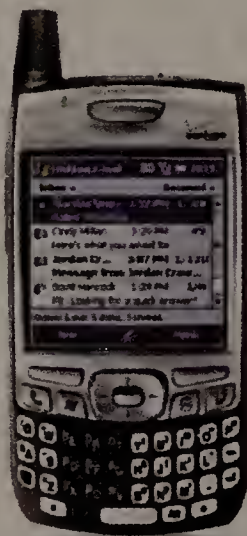
Microsoft's long-awaited push e-mail offering promises to simplify enterprise messaging by leveraging the Exchange Server infrastructure already installed in a company (see graphic). This approach eliminates the need for third-party software from such rivals as Good Technology, Intellisync and Research in Motion, or carrier-messaging services.

But administrators have concerns about whether Microsoft's messaging can match the ease of use of Research in Motion's (RIM) BlackBerry, as well as its network efficiency. Some also wonder when their current cellular carriers will offer Windows handhelds that can support the Microsoft messaging feature.

The Microsoft mobile-messaging package consists of Exchange Server Service Pack 2 combined with the Messaging and Security Feature Pack now bundled with the first handheld devices running Windows Mobile 5.0. Dubbed by Microsoft as Direct

Push, the combination can automatically send out new e-mail, contact and calendar information to a handheld device over a cellular network.

Microsoft last week used the 3GSM World Congress in Spain to promote its latest messaging efforts, airing partnerships with service providers such as Cingular Wireless and T-Mobile and hardware vendors such as HP and Fujitsu Siemens (see www.nww.com, DocFinder: 2239).



New handhelds with Windows Mobile 5.0, like this Treo 700w from Palm, let customers test Microsoft's Exchange-based mobile messaging.

Rivals try hard

Exchange sites are already deploying Service Pack 2, and some are talking with Microsoft and their carriers about small pilots. At the same time, rivals, including Good Technology, are trying to persuade these same sites to try alternatives, exploiting the uncertainty about RIM's long-running legal battle over patent infringements.

Integrus Health in Oklahoma City runs its corporate e-mail on Exchange, but uses BlackBerries to give about 120 senior managers mobile e-mail. IT Architect Bruce Alcock says the healthcare provider will be evaluating the Microsoft offering.

"We have some clinical applications that run on Palm or Windows Mobile devices, but not on the BlackBerries," he says. "We're looking to see what we can provide to combine e-mail and application access, but we don't want the docs to have to carry two devices."

The complexity at this stage is a bit baffling. As an example, Alcock says Palm's new Treo 700w, which runs the needed Windows Mobile 5.0, seems to be available only through Verizon Wireless. But Integrus' mobile carrier is Cingular. "The real hassle is that it's kind of a jigsaw puzzle that you have to put together," he says.

Lifetime Products plans to start testing Exchange-based mobile messaging as soon as it can trial units from Cingular, according to John Bowden, the company's CIO. The Clearfield, Utah, manufacturer makes metal and plastic home products, including tables, chairs and sheds.

The company has about 1,000 Ex-

Evaluating Microsoft's push e-mail

Possible benefits:

- Simpler deployment (no third-party server software needed).
- Lower cost (no additional client licenses needed).
- Growing breadth of handhelds running Windows Mobile 5.0.
- Use clustering and failover of Exchange servers for reliable messaging.
- Device and user management via Exchange plus Windows Mobile 5.0.
- Synchronize Exchange contact and calendar data.

Possible drawbacks:

- Not as easy to use as BlackBerry and others.
- Incremental support costs, if any, unknown at present.
- Network efficiency may be less than rivals, leading to increased data minutes.

change e-mail users worldwide. But Bowden expects only about 150 to 200 of them, mainly senior managers, will need the new capability. Until now, Lifetime was using the existing SMS-based messaging in Exchange: When a new e-mail shows up on Exchange Server, the server generates an SMS text message, sent to the user's smart-phone. The message alerts the user to log on to Exchange for the new e-mail.

Bowden says this comparatively cumbersome technique worked fine, as long as carriers didn't charge for SMS traffic. "In 2003, this was a zero-cost solution," he says. "But now Cingular is charging for in-bound text messages." The Exchange-based push e-mail would save some money.

BlackBerry users are fiercely loyal to the popular handhelds, but drawbacks make the new Microsoft approach worth investigating, according to network administrators, including Rich DeBrino, CIO for Compass Health, in Everett, Wash. The health provider has about 100 BlackBerry users, with Exchange as the corporate e-mail server.

"It's a great e-mail device, [but] the BlackBerry makes a crappy phone," DeBrino says. He thinks the new Windows Mobile devices could combine high-quality voice and mobile e-mail on a single device that would be managed as part of his Windows and Exchange infrastructure. "If we can do it all with Exchange, and do it clean, that would be so much easier," he says.

Oregon State University is weighing a number of mobile-messaging options. The Corvallis-based school has about 150 BlackBerry users. But it's set to pilot Good Technology's messaging software, with a handful of Treo 700w handhelds, in addition

to evaluating push e-mail in Exchange, says Tom Groves, e-mail systems engineer with the network services department.

"What Microsoft is promoting is excellent," he says. "It would be a real benefit not to have an additional server to run, having an integrated [Windows] GUI, and it would make licensing easier, and I'm pretty sure cheaper."

While he says BlackBerries are easy for new users to work with, Groves adds that he expects the rival manufacturers working with Windows Mobile 5.0 will shortly match them in features, ease of use and overall quality.

OSU CIO Jon Dolan likes the prospect of being able to exploit the industrial-strength Exchange infrastructure at the university. "We cluster our front-end servers, and we have a storage-area network on the back end," he says. "So we have Exchange in a more redundant, fault-tolerant configuration than our BlackBerry Enterprise Server."

Exchange users are going to put Microsoft's "BlackBerry Killer" through its paces over the coming months and find out just how effective the Microsoft engineers have been in meeting enterprise requirements for mobile messaging. ■

Short Takes

■ **Google** has acquired **Measure Map**, a company that provides analysis of blog usage and traffic, for an undisclosed amount. Google says it bought Measure Map from its creator, Adaptive Path, a consulting, research and training company. With Measure Map, publishers can track visits to their blogs and monitor user activity. The service is free but by invitation only. Users can request an invitation at www.measuremap.com.

nww.com

Wireless event

Wireless LANs and Enterprise Mobility is one of six fast tracks at IT Road Map events coming to Boston, Chicago, Dallas and the Bay Area. Forty IT all-stars, analysts and vendors offering new technology and best practices.

DocFinder: 2025

APPLICATION SERVICES

■ CRM ■ MESSAGING/COLLABORATION ■ WEB SERVICES ■ ERP ■ E-COM ■ NETWORK AND SYSTEMS MANAGEMENT

Short Takes

■ **Google** is testing a program to offer **Gmail** as an enterprise hosted e-mail service, thus extending the scope of this Web mail service from individuals to the realm of businesses, universities and other organizations. The program makes Gmail the back-end service for all users on an organization's e-mail domain, with all necessary hardware and software provided by Google. Each user will get 2GB of storage space. The service, called "Gmail for your domain," also gives organizations a control panel for their IT departments to administer and manage user accounts. Companies interested in being part of this limited beta program can apply at www.nww.com, DocFinder: 2238. It isn't clear from the information available on the Google site how much it costs to participate in the beta program, or how much Google plans to charge for the service when it becomes generally available.

■ **Voyence** last week upgraded its software to manage network change and configuration, which the company says can help network managers automate more tasks when rolling out, configuring and tracking changes on network devices. **VoyenceControl Next Generation** includes modeling technology that lets customers configure devices in software before they are deployed, which will reduce the chances of human error, the company says. Voyence also added a feature it says will reduce the amount of manual labor needed to maintain devices. Dubbed "zero-touch install," the feature verifies hardware identity, updates operating system images, pushes the defined configuration and automatically runs diagnostics on devices. Voyence includes centralized software installed on a server, as well as software distributed on other services to support and collect data from network devices. The base price for Voyence-Control Next Generation is \$15,000 to manage 150 devices. The company says an average implementation can cost about \$45,000.

Start-up offers content mgmt.

BY ANN BEDNARZ

Open source software start-up Alfresco Software has new funding to fuel its drive into the corporate content-management arena. The London company, launched a year ago, closed an \$8 million second round of venture funding earlier this month.

Alfresco's flagship software combines a content repository and portal framework to help companies keep tabs on everything from e-mail and images to streaming media and XML content. Standard features include rule-based processing, document-level security, version control, automatic metadata extraction and collaboration capabilities.

The company offers three versions of its software:

- Alfresco Community Network, a free download.

- Alfresco Enterprise Network, a support subscription that includes such enterprise features as patch support, clustering and directory-based authentication. A 12-month subscription starts at \$7,500 per CPU for an unlimited number of users.

- Alfresco Small Business Network, which is designed for small and midsize businesses and includes the vendor's standard enterprise features. A 12-month subscription for 20 users starts at \$3,000.

About 120,000 people have downloaded Alfresco's content management software since it became available in June, and 16 firms have signed up for enterprise support contracts, according to John Newton, Alfresco's co-founder and CTO.

The software is designed to achieve greater user acceptance than traditional platforms from such vendors as Documentum, FileNet, IBM and Interwoven, Newton says. Users often circumvent enterprise content-management products because of their cumbersome Web interfaces and use Microsoft's shared network drives to swap content instead. "It's just so much easier for users to dump stuff onto a shared drive and send an e-mail saying where to find it," Newton says.

With its software, Alfresco is capitalizing on users' familiarity with shared drives. Alfresco is using open source software from Spring that emulates a Microsoft shared file system and lets Alfresco expose its content repository via an interface that looks like a

See Alfresco, page 22

Quest extends single sign-on support

BY JOHN FONTANA

Quest last week added single sign-on application support to its software that integrates Active Directory with Unix and Linux platforms.

With Vintela Authentication Services (VAS) 3.0, users can expand single sign-on capabilities to applications running on non-Windows platforms. Previously, the software gave users single sign-on to Linux, Unix and Windows platforms, but not to individual applications. Windows users had to have a separate user name and password for logons to applications on those platforms.

Now that Quest is aggregating users' access to the network and applications with a single logon, the company plans to expand its smart card support to Linux and Unix. The move lets companies install two-factor authentication across platforms to secure users' access credentials.

Quest also has made it possible to migrate users from Unix Network Information System, a database of user passwords, to Active Directory. This migration capability is supported by Quest's Unix Personality Management feature, which lets users create a Unix personality in Active Directory that is used to assign users to Unix servers.

"You have to be able to secure all your identities," says Andi Mann, a senior analyst with

Enterprise Management Associates in Boulder, Colo. "The basic principle of security is security at every level, knowing every user at every point, not just on the operating system, but with the applications as well," he adds.

VAS 3.0 ships with connectors for SAP and IBM's DB2 database and includes an API for building custom connections to other systems. Quest plans to add support later this year for Oracle's database and financial applications. Quest also is adding reporting features from its Quest Reporter software to the VAS platform to help users meet auditing and compliance regulations.

Quest, which acquired privately held Vintela last year, has been upgrading VAS since late last year. It first combined the platform and Vintela Group Policy into a single product called VAS with Group Policy Components. Microsoft's group policy lets administrators control configurations of desktops and servers. Quest also added support for Solaris 10 and Linux on 64-bit AMD and Intel chips.

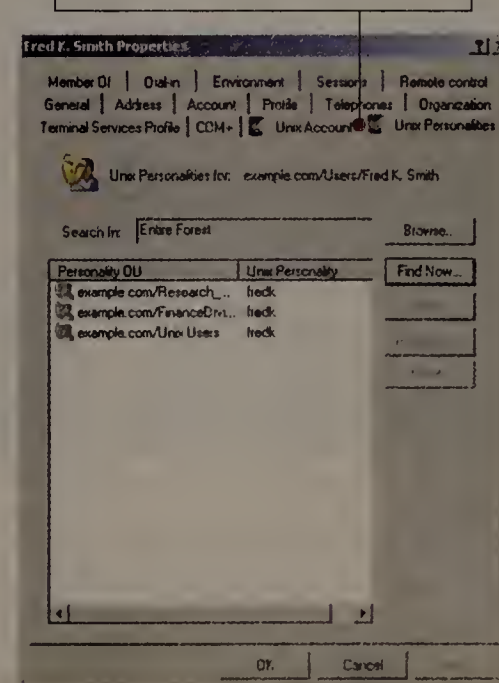
Quest competes with companies such as Bindview, NetIQ and NetPro on management of Microsoft infrastructure and with Centeris and Centrify on integration with Unix and Linux.

VAS 3.0 is priced at \$325 per server and \$45 per user. ■

Microsoft–Unix merge

Quest has updated its Vintela Authentication Services (VAS) with features that help migrate Unix Network Information System user identifiers to Microsoft's Active Directory.

The Unix Personality Management feature in VAS 3.0 lets users list Unix personality information in the organizational units that make up Microsoft's Active Directory.





NET INSIDER
Scott Bradner

Father knows best about net neutrality

Testifying at a Feb. 7 Senate Commerce committee hearing, Google's Vint Cerf asked senators not to let the phone companies mess up the Internet's architectural model. Walter McCormick Jr., president of the U.S. Telecom Association, followed Cerf, stating that telecom companies will not do any of the evil things Cerf (often called the "Father of the Internet") was worried about, but asking the senators not to block their ability to do so.

Many other speakers and many committee members let us know their opinions, but in the end the choice in this hearing came down

to two parties: the telecom folk, who want the ability to extort money from companies using the Internet to deliver services to their customers, and those worried that anything of the sort would kill the generative powers of the Internet.

The hearing (see streaming video at www.nww.com, DocFinder: 2232) concerned the concept of net neutrality. Pure net neutrality would mean that an ISP would not be able to differentiate its processing of different types of traffic. The alternative to a neutral network is an environment where the ISP could differentiate its processing of traffic types based on whatever grounds it wanted. The most commonly mentioned reasons for such differentiation are first, that an ISP offering services such as video or voice runs its own traffic, and at a higher priority than traffic from others offering competing services; and second,

that a service provider, such as Google or Vonage, pays the ISP money to get its traffic prioritized (see "Blocking the power of the Internet" at DocFinder: 2233).

Cerf was quite eloquent — as he is wont to be — in both his oral and written testimony (for a list of the hearing's witnesses and links to their formal testimony, see DocFinder: 2234). He, along with a number of other witnesses, described the current state of competition in broadband services to different parts of the country. (That state is not very good. Only half of customers get any choice at all and a significant percentage has no way to get broadband Internet access.) They worried that letting ISPs (almost all telephone and cable TV companies) decide what content and applications their customers could get quality access to would destroy the ability of new services

to get started, because they could not afford to pay the ISPs to get reasonable-quality access to the ISPs' customers. One of this group, Gary Bachula, a vice president of the Internet2 consortium (see DocFinder: 2235), said there was no reason for any traffic prioritization. Internet2's research has shown that adding bandwidth was less expensive and better, he said.

The other side said it would never "block, impair or degrade content, applications or services." (McCormick, who made this vow, was forced later in the hearing to admit that some ISPs were already blocking access to some services.) This group painted a dire picture of no additional deployment of broadband ISPs, because the ISPs would not be able to get enough money for the service to pay for the deployment. They were quite careful not to say just what they would do to get the money

that would not involve blocking. We are left to guess.

This hearing came down to one group, including the Father of the Internet, saying that it is not time to break the model that created today's incredibly important and dynamic Internet, and another group saying that the Internet will stop expanding unless its members can somehow get someone other than their customers to give them money to do what their customers already pay them to do. This is a case of Father Knows Best.

Disclaimer: No school operating in loco parentis always knows best, not even Harvard. But the above opinion on fatherly knowledge is my own.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Alfresco

continued from page 21

shared file drive.

The product's architecture also is a distinguishing feature, Newton says, because it uses a modular method called aspect-oriented programming. "An 'aspect' is another name for a module that can be plugged in at run-time," Newton says. Aspect-oriented programming gives companies the flexibility to plug in or leave out versioning or archiving, to improve performance.

"If you don't need to do client/server communication, that's a big chunk out of your computation costs. If you're not storing all the metadata that you don't need, that's another big chunk out of database administration costs," Newton says.

Newton is no stranger to the enterprise content-management world. He's one of the founders of Documentum, now an EMC company. Newton joined John Powell, a former CTO at Business Objects, to found Alfresco.

A number of other ex-Documentum staff also migrated to Alfresco. Engineers involved in designing Documentum's Webtop user interface, Java Web development kit and portal integrations came on board, Newton says.

Newton's experience at Documentum, as well as the engineers he brought with him to Alfresco, helped persuade Bob Hecht to take a look at the open source software. Hecht is vice president of content strategies at Informa in London, which produces publications, events and data ser-

Profile: Alfresco Software

Founded:	January 2005
Location:	London
Products:	Open source enterprise content-management software and services.
Key executives:	President and CEO John Powell, former COO at Business Objects; CTO and Chairman John Newton, former co-founder of Documentum.
Funding:	\$10 million in venture funding, including an \$8 million second round closed in February 2006.

vices worldwide.

In a previous role, Hecht purchased Documentum's software and liked its Webtop interface in particular. But Informa wasn't willing to commit the funds a Documentum rollout would have required, Hecht says.

He evaluated a number of commercial and open source content-management products, but many of the commercial options sacrificed too many features, while most of the open source alternatives focused too narrowly on Web content management, he says.

Although the Alfresco software doesn't have the sophistication of a product such as Documentum, it met enough of Informa's requirements, at a cost Hecht estimates will be "about one and a half orders of magnitude less expensive" than a commercial option. ■

Sophos enters e-mail security appliance market

BY CARA GARRETSON

Sophos, which has long offered its anti-virus and anti-spam software for resale by a number of messaging-security appliance makers' wares, is looking to sell to corporate customers.

The company last week announced its first messaging-security appliance, the ES4000, which features Sophos' own anti-virus and anti-spam software for inbound and outbound e-mail. The software includes some outbound compliance-filtering, for example, searching outgoing messages for keywords and blocking them, says Chris Kraft, the company's vice president of product management.

Sophos says the ES4000 is a hybrid approach to e-mail security, because it mixes the convenience of an appliance with the support of an outsourced service. Customers won't need to monitor or maintain the appliance, Kraft says, because Sophos does that for them. Through an Internet connection, Sophos staff remotely monitors the health of the appliance hardware and alerts customers when, for example, a queue is filling up and might affect the performance of the unit, Kraft says. When a fix can be done remotely, Sophos staff will alert the customer to the situation and perform the maintenance.

Sophos says this remote monitoring and maintenance make the ES4000 an option

for companies that want relief from managing their own appliances but still want to be able to keep their e-mail in-house.

The 20-year-old, privately held Sophos has a long history in the anti-virus market and more recently entered the anti-spam market with its Unix-based gateway offerings. Companies including IronPort, Mirapoint, and Secure Computing resell one or both of Sophos' software products. The company says 30% of companies running e-mail security appliances are already using its software.

Sophos maintains that it isn't competing with its partners in releasing its gateway appliance because it is one of the first to introduce the concept of a "managed appliance," Croft says.

One consultant doesn't necessarily agree. "Sophos certainly faces the risk of alienating those [appliance] partners, but with anti-virus and anti-spam becoming commoditized, it probably isn't going to hurt them that much," says Michael Osterman, president of Osterman Research. "Any negative would be more than offset by increased sales."

The ES4000 is aimed at large organizations — those with between 1,000 and 5,000 users — that process millions of e-mail messages a day. It arrives preconfigured at the site based on the customer's specifications. Pricing starts at \$9,000. ■

Realizing a Dream Data Center Design

Using Force10 high-density switch/routers, Veritas' IT team was able to implement the simple, scalable design they desired.

Processing volumes of data better, faster and cheaper is at the heart of Veritas DGC's value proposition to its customers — making IT strategic to the company's competitiveness. So when it came time to upgrade its computing clusters from Fast Ethernet to Gigabit Ethernet (GbE) connections (one of several cluster interconnect technologies used), the IT team knew it had an opportunity to design a network core that could help the company reduce data center costs and hone its competitive edge for years to come.

Veritas' Global Processing Facility in its Houston Headquarters effectively manages the extreme compute demands of today's most advanced geophysical processing.



Veritas, headquartered in Houston, Texas, is a leading provider of integrated geophysical information and services to the petroleum industry worldwide. Among its services are seismic survey planning and design, seismic data acquisition, and the processing, visualization, and archiving of 3D and 2D data.

Due to the enormous amount of processing capacity and network bandwidth required to manipulate such complex data, Veritas' IT infrastructure is key to its ability to generate revenue. Making that infrastructure ever more efficient is a challenge for IT. "We have to be able to drive down our costs so we can reduce costs to customers," notes Phil Gaskell, Veritas' Global Network Manager. "If we can deploy a network for \$3 million as opposed to \$5 million, we can deliver a more cost effective solution and improve our bottom line."

When IT staff brainstormed about what the ideal data processing facility design would be, it became clear they wanted fewer layers in the network. "That was our dream design — everything taken away, with a big chuffing switch with lots of ports at the core," says Doug Northrup, Veritas' Houston Manager of

Networks. Force10 Networks was the only vendor that could deliver a switch/router with the port density and resiliency Veritas needed, according to Northrup.

Realizing the Dream Core

The initial challenge facing the IT team was to scale the network core in each data processing center to accommodate large numbers of GbE interfaces. But the team also wanted a network design that was flexible and scalable enough to accommodate new technologies and traffic flows down the line. Lacking a very high density core device, other networking vendors proposed designs that required numerous inter-switch links. And IT would have had to build resiliency into the network through redundant devices, links and other mechanisms.

"That design would have cut down on the infrastructure's scalability and increased the cost and complexity," Northrup says. "You end up using more ports to connect switches together than you do for connecting systems to switches. And instead of a non-blocking core, you have to implement an over-subscribed core."

In contrast, Force10's E-Series 1200 switch/router scales up to 1260 GbE or 224 10 GbE ports per chassis and features a non-blocking switch fabric. The E1200 has allowed Veritas to eliminate an aggregation layer from its network architecture, reducing overall network cost as well as latency. "Don't aggregate unless you have to," Gaskell advises. "It adds costs and inefficiencies."

In addition to high port density, resiliency is built into the E1200. All E-Series devices have fully redundant components, ensuring hitless failover with no packet loss in the event a component fails. The E-Series also has a fully distributed architecture with independent processors for switching, routing, and

management, which allows faults to be contained. Because resiliency is inherent in the E1200, Veritas' IT team didn't have to build these capabilities into the network, thus lowering their operations and management overhead.

"The E1200 is a very well designed, redundant piece of machinery," Northrup says. Gaskell concurs: "The only component we could break was the paint. I can sleep well at night."

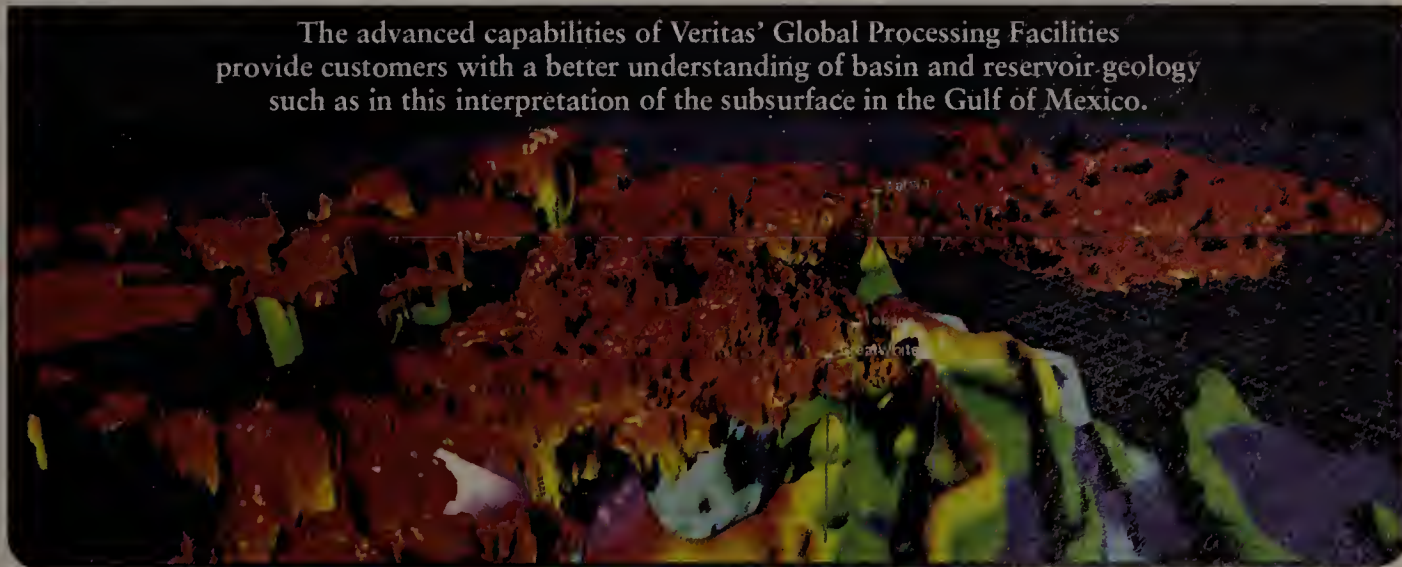
The Ultimate Benefit: Flexibility

Veritas currently has Force10 E600s and E1200s deployed in its Houston, London, and Singapore data centers. Having such high-density switch/routers has allowed IT to build efficient, high bandwidth, resilient data center back ends with the scalability to accommodate future changes.

And by allowing Veritas to implement a simpler network design, the E1200 has enabled IT to drive down equipment and overhead expenses. Fewer devices in the network means lower power consumption and cooling costs, for example, and less management overhead. Northrup notes that transitioning to Force10's equipment was "seamless," with virtually no learning curve for the staff.

Above all, Force10 has given Veritas flexibility. "We're always pushing the edge with new technologies," notes Gaskell. "Flexibility was one of the main things we were looking for. We don't know what's coming around the corner and we don't want to lock ourselves into an architecture. Such a high density core gives us the flexibility to explore different design options. And if a new technology comes along, or the algorithms or traffic flow change, we wouldn't have to re-engineer the network or forklift out the infrastructure with Force10."

The advanced capabilities of Veritas' Global Processing Facilities provide customers with a better understanding of basin and reservoir geology such as in this interpretation of the subsurface in the Gulf of Mexico.



For a FREE white paper on the Force10 data center vision, visit
www.nww.com/2force10

Sponsored by

FORCE10™

SERVICE PROVIDERS

THE INTERNET ■ VPNS ■ INTEREXCHANGES AND LOCAL CARRIERS ■ WIRELESS ■ REGULATORY AFFAIRS ■ CARRIER INFRASTRUCTURE

EYE ON THE CARRIER

Johna Till Johnson



Tackling telecom policy

Last week, we examined the bio of the newest FCC commissioner, Robert McDowell. He's a more important guy than it might first appear, because he'll serve as the swing vote on a number of critical regulatory and policy issues the FCC plans on addressing in upcoming months. A few examples:

Net neutrality. Unless you've been buried under a snowdrift all winter, you've heard about net neutrality. Proponents of the concept — chiefly content producers such as Google and Yahoo — argue that government should prohibit carriers from charging differently for varying types of traffic. Carriers respond they should have the right to charge more for particular types of content, including services such as VoIP and content generated by massive sites such as Google. The Senate started looking into the issue two weeks ago, and it's becoming a contentious debate that will ultimately force key semantic and philosophical clarifications. This is a big hairball, folks.

Universal broadband access. Should the government get involved to accelerate deployment of broadband access in the

United States? That may sound like a no-brainer, but on closer examination, maybe we're better off when the government stays out of the business of regulating broadband access. As noted in previous columns, state governments and the feds have aggressively moved to limit municipal and city governments from attempting to roll out municipal broadband networks. So let's see: The government needs to start promoting broadband access to stop itself from prohibiting broadband access? Hmmm.

Wiretapping, and specifically CALEA. Sick of hearing about government wiretapping initiatives? Too bad. The Communications Assistance for Law Enforcement Act (CALEA), which compels carriers to assist law enforcement authorities in

obtaining access to communications that may be part of an ongoing investigation, is supposed to take effect on the Internet in 2007. But it may not: Various organizations have filed suit in federal court to block its application to the Internet, arguing that Congress explicitly said CALEA would not apply to the 'Net. So does it or doesn't it? I'll keep you posted.

Internet backbone interconnection agreements. As most readers are aware, the Internet has multiple backbones. There are two basic ways for traffic to get from one backbone to another: peering, in which "like-sized" service providers agree to carry each others' traffic at no cost; and transit, in which one provider pays another for delivery. The catch is that sometimes providers

can fail to come to either a peering or a transit agreement, in which case entire networks of users can become disconnected from the Internet. Thus, one of the ongoing and (I'd argue) most critical behind-the-scenes issues facing the Internet is figuring out a consistent framework for peering and transit to ensure that providers are compensated fairly for the costs of running their networks, and not arbitrarily disconnected.

Yep, Commissioner McDowell's going to be a mighty busy guy. Let's hope he and the rest of the FCC act wisely.

Johnson is president and senior founding partner at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Cingular touts upgrades to wireless

BY DENISE PAPPALARDO

Cingular Wireless last week announced new wireless data-rate plans and a PC card that promise cost predictability and ease of use for international travelers.

Next month Cingular, a joint venture between AT&T and BellSouth, will offer users its GlobalConnect International Data Roaming flat-rate plans that will let users wirelessly access the Internet from 24 countries using High-Speed Downlink Packet Access (HSDPA) and 95 countries using the slower Enhanced Data Rates for GSM Evolution/General Packet Radio Service (EDGE/GPRS) network services. The carrier also plans to introduce its Option GlobeTrotter GT MAX Laptop-Connect card in March.

Cingular says it's the first tri-band card that lets users roam in the 850MHz, 1900MHz and 2100MHz bands. Customers will pay \$100 for the card.

With Cingular's old plan, customers paid usage-based roaming fees, says Laura Johnson, senior director of enterprise solutions. "The new plan is more cost effective and provides predictability," she says.

Cingular charged customers about 2 cents per kilobyte for all data traffic when accessing the Internet from overseas. The new plans, which come in two flavors, eliminate the per kilobyte charge.

One plan will cost \$110 per month and includes unlimited data use in the United



Cingular's PC card has a retractable antenna that the carrier says will make it easier to use.

States and 100MB of downloads in Canada and Mexico. The other plan will cost \$140 and will include unlimited use in the United States and 100MB of downloads in 24 countries, including Australia, China, France, Germany, the United Kingdom, Italy and Japan. Cingular says it plans to add other locations. Users also can connect to the Internet over Cingular roaming partners' EDGE/GPRS networks in 95 countries.

"Cingular is pushing the envelope regarding U.S.-to-world mobile data roaming — by making the pricing predictable," says Brownlee Thomas, principal analyst at Forrester Research. But she points out that coverage for the highest speed wireless data, Universal Mobile Telecommunications System and HSDPA, is still an issue.

Cingular says it will support two dozen countries, "but it doesn't fully commit to their immediate availability," Thomas says.

Cingular says its PC card has a retractable

antenna, which means users won't have to remove the card when transporting their laptops. The device also is integrated with its Communications Manager software that shows users which cellular and Wi-Fi networks are available as they travel.

Cingular says its offering is better than competitors' for business travelers because users will need only one tri-band card; its service is based on GSM, which is more widely used around the world; and users have access in far more countries, Johnson says.

One analyst agrees. "For U.S.-based customers, this is excellent news. It ... positions [Cingular] as a clear leader — among U.S. mobile carriers — in addressing pent-up demand for better international mobile data roaming pricing models," Thomas says.

In September, Verizon Wireless and Vodafone Group started a service that lets customers use wireless Internet in more than 50 countries, but requires customers to use two different PC Cards. The cards do not support Wi-Fi. The card used to access Vodafone's 3G/GPRS network costs either \$180 or \$230 for users that sign two-year or one-year contracts, respectively. The card used to access Verizon's EV-DO network costs \$280 or \$380 for users that sign two-year or one-year contracts, respectively.

Nancy Gohring of the IDG News Service contributed to this story.

Short Takes

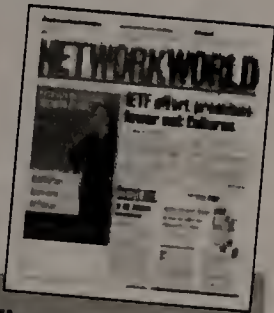
■ **Hammerhead Systems** has announced the appointment of Richard Gitlin as CTO. Gitlin joins Hammerhead after a 32-year career at Bell Labs and Lucent leading research in digital communications, broadband networking and wireless systems. He was CTO of Lucent's Data Networking Business Unit and senior vice president for communications and networking research at Bell Labs. After leaving Lucent, Gitlin was vice president of technology and CTO of NEC Labs America. He also was a professor of electrical engineering at Columbia University where he taught courses and supervised research in networking and wireless systems.

Get a one-year subscription to
NETWORKWORLD®

\$129.00 value...

FREE

when you apply now!



PLUS 6 SPECIAL ISSUES including:

- The Extended Enterprise Issue
- The Buzz Issue
- The Network World 200 Issue
- The Best Issue
- The You Issue
- The Power Issue

Hurry... FREE subscriptions are limited!

Apply online at:

my.nww.com/b06

Your FREE subscription gives you 50 weekly issues

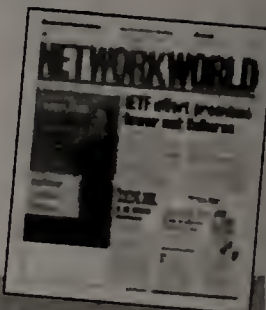
Get a one-year subscription to

NETWORKWORLD[®]

\$129.00 value...

FREE

when you apply now!



PLUS 6 SPECIAL ISSUES including:

- The Extended Enterprise Issue
- The Buzz Issue
- The Network World 200 Issue
- The Best Issue
- The You Issue
- The Power Issue

Hurry... FREE subscriptions are limited!

Apply online at:

my.nww.com/b06

Your FREE subscription gives you 50 weekly issues

TECHNOLOGY UPDATE

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

Multithreading weaves its way into nets

BY MARIO NEMIROVSKY

Network systems increasingly need to be application-aware to control access, allocate resources and prioritize traffic. Maintaining stateful packet flow information at gigabit/second line speeds requires a rate of random memory access that is beyond the capability of today's traditional processors. And application-specific integrated circuits (ASICs), while fast, can't keep pace with constant changes in network protocols and applications.

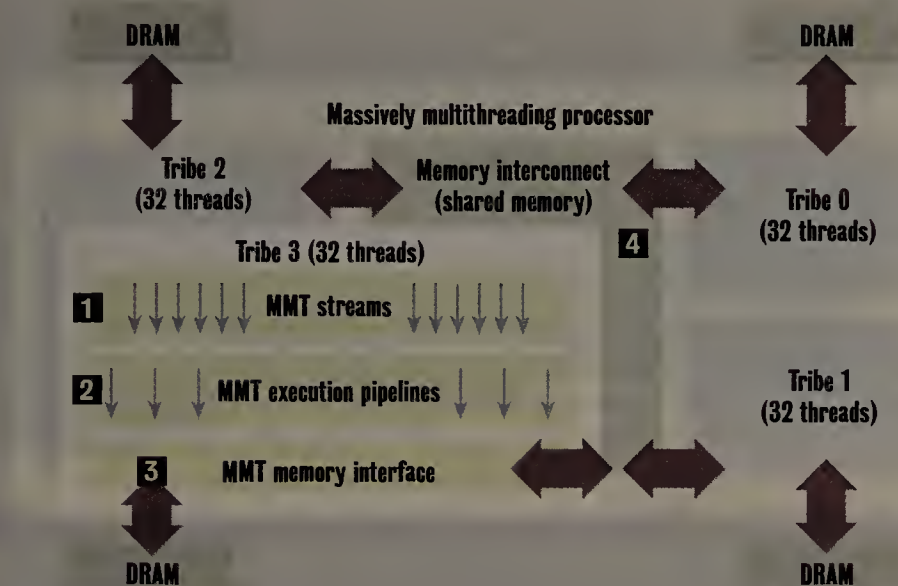
A new architectural approach for application-aware networks has demonstrated tangible benefits: massive multithreading (MMT). Understanding this technology is key to evaluating the next wave of network infrastructure.

In the current generation of MMT processors, software threads typically correspond one-to-one to hardware threads, or streams. Threads are often organized into clusters, or tribes, to optimize resource utilization, and multiple tribes can be implemented in the same chip. Each tribe has access to its local external dynamic RAM (DRAM), as well as to a shared internal memory. The term pipeline (or core) refers to the physical circuitry that executes software instructions.

Networking differs fundamentally from desktop computing because processing stateful packet flows requires frequent access to data with low locality. Locality involves the likelihood of having the required data or instruction available in the processor's current memory location. Because packets in a stateful flow arrive at random intervals, networking equipment benefits little from PC-oriented multi-

HOW IT WORKS: Massive multithreading (MMT)

MMT processors overcome traditional memory bottlenecks, allowing stateful packet processing in software to achieve ASIC-like performance.



- 1 Each incoming packet is assigned to a separate software thread with its own hardware stream.
- 2 The threads are executed 16 at a time in the execution pipelines.
- 3 The memory interface provides high-speed I/O to the external DRAM for all 16 pipelines concurrently.
- 4 The memory interconnect lets packets in a stateful flow be processed in any tribe.

Note: Tribe 3 is enlarged to show additional detail.

processors that depend on a high degree of locality for better performance. Low locality results in a high rate of requests for data that is not in cache, which increases latency beyond acceptable limits.

MMT maximizes memory throughput by

letting a greater number of memory requests to be active simultaneously. Because of this, MMT is able to perform sophisticated protocol processing in software at throughput levels that previously required one or more dedicated ASICs. This opti-

mization of RAM access also enables MMT to overcome the stateful packet throughput limitations of traditional multiprocessors.

Each memory operation introduces processing latency. To maintain low latency and high throughput in the face of demanding memory access requirements, network-oriented multiprocessing architectures need to support a very high number of simultaneous threads and execution pipelines, each with its own dedicated processing resources. By pushing packets in parallel through 100 or more threads, deep packet inspection can be sustained at 10Gbps data rates with a latency of less than 1 millisecond — an impossible task for two (or even two dozen) threads operating at today's high-end clock rate of 4 GHz. This allows MMT to accommodate VoIP and other delay-sensitive applications on high-speed backbones.

As bandwidth continues to increase, an even greater number of simultaneous threads may become necessary. Initially, the demand will be met with higher thread counts implemented in tribes of multiple streams served by separate cores. Such advances are occurring already for network-access control and identity-based network applications in LANs, where 128 threads is the state of the art. Over time, advances in technology will permit higher levels of protocol processing parallelism with a greater number of streams and execution pipelines.

Nemirovsky is chief scientist for Consentry Networks. He can be reached at mario@consentry.com.

Ask Dr. Internet By Steve Blass

Did you really mean to say that using a static IP address will make file transfers go faster than using DHCP IP addresses? (see www.nww.com, DocFinder: 2237)

No, using static addresses is not magically faster than using DHCP addresses. The goal in that article was to get two PCs on the same physical network segment onto the same IP subnet, so that the router hop could be eliminated from the file transfer network path. The same result could be accomplished by putting those two PCs

onto the same IP subnet using DHCP rather than static ones. When the physical segments line up with the IP subnets, packets bound for destinations on the same subnet/segment are delivered directly in Ethernet frames. When IP packets are delivered through a router, the router delivers the packets to the destination machine in Ethernet frames. In IPv6 networks the IP address can be automatically derived from the Ethernet media access control address without DHCP or static address management. In IPv4 the Ethernet addresses are longer than the IP addresses, so systems use

Address Resolution Protocol to map from one to the other. When it's time to deliver the data to a wired Ethernet device, the data travels the last segment to the receiving machine in an Ethernet frame. In my previous article, the point of changing the addresses was to limit the trip to one hop from sending machine to receiving machine, so the data could be sent directly by Ethernet without the intervention of an IP router.

Blass, a network architect at Change@Work in Houston, can be reached at drinternet@changeatwork.com.



GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

Sound advice from Acid Pro

This week we embark onto the seas of multimedia. Over the next few weeks we'll be looking at products and technologies that will make your struggles with graphics, audio and video a lot easier.

Multimedia is becoming increasingly important, which means you IT chaps are having to get more involved in figuring out how to drive multimedia authoring and editing products, as well as integrating them into corporate business processes.

So, let us start with sound recording and editing.

For recording we used to use Sonic Foundry's Acid software, which let us not only record but also mix our recordings with sound effects and generally tweak multiple tracks. This was a couple of years ago, back when we started doing what today is called podcasts.

If you want to hear how we used and abused the old version of Acid, check out Gibbsblog for a link to the audio of "Gibbs Out Loud Episode 41,750" (www.nww.com, DocFinder: 2242). Should you, by some strange chance, enjoy it and care to tell us, we might just do more episodes. Or not. It's hard to know.

Be that as it may, the latest version of the software is Acid Pro 5 (DocFinder: 2241) and is now published by Sony, which acquired Sonic Foundry's audio product lines some time ago.

For multimedia development the latest version of Acid Pro is incredibly useful and effective yet fairly easy to come to grips with. The software runs under Windows 2000 or Windows XP, and you'll need at least an 800MHz processor and a 1,024-by-768-pixel screen. If you plan to use the video feature, you'll need a 1GHz processor or better.

The concept behind Acid is similar to a recording studio with multitrack capability. You load prerecorded sounds to

For multimedia development the latest version of Acid Pro is incredibly useful.

each track or record into a track from your PC sound card. You then specify in a track's timeline when and for how long the track is to play, as well as define the track's volume and pan (that's the balance between left and right) envelopes.

There are four types of tracks: loops, one-shots, beat-mapped and Musical Instrument Digital Interface (MIDI). Loops are usually one to four measures in length and are usually used for repeating sounds, such as drums. One-shots are used for events that usually happen once, such as a cymbal crash. Beatmapped tracks are sounds with embedded beat data that ensures they can be synchronized with the overall beat of a piece. The final track is for MIDI file playback (Acid Pro also can route MIDI data to external MIDI-compatible devices).

To create a composition, you select media files in the

Explorer window and drag them to tracks, then draw or paint them onto the timeline. (The difference between the two methods is that drawing applies to only one track and painting can be done to multiple tracks.) Note that we wrote "media" — Acid Pro also can load and render the audio and video from video files. This means you also can use the software for scoring movies (look out, Spielberg).

You also can add one or more effects, such as reverb, chop (that groovy stuttering effect), flanging (think Hendrix) and so on, to each track or apply any combination through the mixer to modify the final output.

The basics of Acid Pro are easy to master, but we haven't even scratched the surface of what this software can do if you want to get sophisticated. It comes with a huge number of sample compositions, including those from Bill Laswell, which shows that you can create some really sophisticated music with this system. More than 1,000 sound loops are provided.

You can save your creations to a range of audio and video formats in stereo or 5.1 format, burn CDs and, rather oddly, export to Sony's proprietary Net MD devices (MD stands for Mini Disc and is a format that could best be described as moribund).

There are all sorts of opportunities for using Acid Pro, such as creating custom background music for PowerPoint presentations or videos, or editing voiceovers for training materials. Acid Pro is very reasonably priced at \$300.

Sound off to gearhead@gibbs.com.



CoolTools

Quick takes on high-tech toys. Keith Shaw

The scoop: PowerSquid Surge3000 surge protector, by Flexity, about \$70 (preorders available at www.powersquidstore.com).

What it is: Most surge protectors are long, vertical strips with about six or seven power outlets that let you plug in various cords. But many power adapters are larger and eat up the space available for additional cords and adapters.

The PowerSquid takes care of that by extending its female outlets away from the base in a tentacle-like fashion. This lets you use every outlet and not having to figure out the best way to optimize the power strip, or daisy-chain multiple surge protectors in order to plug everything in. The PowerSquid comes in three versions (1000, 2000 and 3000, depending on the amount of joule protection offered), as well as a special Calamari Edition, which includes two glowing outlets and is white instead of black (the \$80 version also includes an audible alarm). All models include phone line and cable line surge protection as well.

Why it's cool: Anyone who has spent time with a limited amount of power space in their wall has purchased a surge protector for additional outlets, and then discovered that a lot of their equipment has those bulkier adapters that take up two or three spaces on the power strip. This eliminates that issue. The design really does look like a squid; it's almost a shame that the device will end up sitting on the floor instead of on your desk.

Grade: ★★★★★ (out of five)

The scoop: External Hard Drive (400GB, dual interface), from Seagate, about \$330.

What it is: Just like the product's title says, it's an external hard drive that offers 400GB of space for PC users. The system connects via USB 2.0 cables or an IEEE 1394 (aka firewire) cable to provide connectivity to your PC. Bundled BounceBack Express software from CMS Products lets you quickly back up and restore files from your PC to the external drive, as well as at the touch of a button on the front of the device.

Why it's cool: With the emerging needs of users for more storage (music, video files and photos keep clogging up the desktop, not to mention work-related documents such as Word, PowerPoint or Excel files), it's nice to have a system that can quickly and easily take care of storage needs, at least for a while. With prices less than \$1 per gigabyte, users who complain that they have no space left can be satisfied by giving them one of these systems.

I was able to easily connect the device to a Windows XP PC and access the hard drive. The BounceBack Express back-up software was confusing at first — it wanted me to back up the entire C drive by default, and I just wanted to back up the My Documents folder.

After figuring out how to change the configuration, I ran the initial backup, transferring about 604MB over to the drive in about a minute. With subsequent backups (achieved by just pushing the button on the hard drive), the software monitored only what files had changed — I had added a file, deleted a file and modified a file, which the software quickly recognized, and the backup was ultra-fast. I was also able to quickly restore the deleted file and return it to its rightful location on the external drive.

Grade: ★★★★★

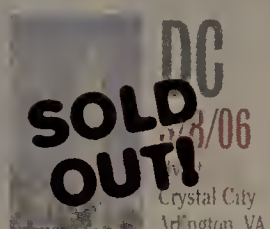
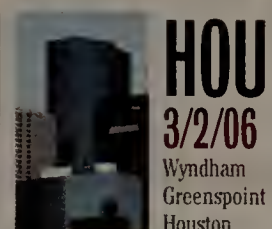
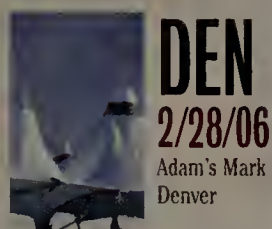
Shaw can be reached at kshaw@nww.com.



Seagate's external hard drive offers a quick and easy way to add storage.



The cool-looking PowerSquid Surge3000 will support any type of power adapter.



NETWORKWORLD

LIVE Technology Tour

Network Management: The New Core Competency

Automation. Compliance. Integration. It's the new language in the new world of network management. Where leadership requires you to anticipate problems, recognize change, and innovate on the fly. Because today YOU are a key driver of the enterprise, and network management is THE core competency crucial to success.

That's why **Network Management: The New Core Competency** is the one event you can't afford to miss. The only event where you can learn the latest practices while targeting new solutions that will amp your organization from good-to-better-to-best in nine key management technologies: (see right)

Jim Metzler is your host. Agility, innovation, and best practices are his themes. Inside expertise, effective answers, practical tools, and benchmark standards will be your takeaways. To qualify to attend **Network Management: The New Core Competency** free, advance registration is required. Seats are limited, so reserve your place now.

1. **APPLICATIONS** - maximizing business drivers
2. **INFRASTRUCTURE PERFORMANCE** - increasing returns on IT investments
3. **SECURITY** - anticipating threats and preventing attacks
4. **COMPLIANCE** - meeting government demands and relieving regulatory pressures
5. **ANALYTICS** - employing leading-edge troubleshooting systems
6. **BUSINESS SERVICES** - syncing business objectives to your IT architecture
7. **CONFIGURATION AND PATCH STRATEGY** - creating responsive, dynamic, real-time security
8. **WEB SERVICES** - streaming and integrating mission-critical apps
9. **SERVICE LEVEL MANAGEMENT** - delivering enterprise-advancing IT tools direct to users

Event Host:



Dr. Jim Metzler,
President of
Ashton Metzler
and Associates

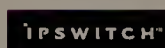
Who should attend?

- > VPs/Directors/Managers of IT
- > Network VPs/Directors/Managers
- > VPs/Directors Operations
- > Network Architects
- > CIO/CTO/CSO
- > Corporate Managers

Platinum Sponsors:



Infoblox



Netcordia, Inc.

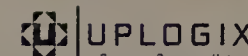
Optinuity™



Gold Sponsors:



Lucent Technologies
Bell Labs Innovations



NETWORK MANAGEMENT | QUALIFY TO ATTEND FOR FREE | REGISTER AT
www.networkworld.com/NMW6A2 or call 1-800-643-4668



On Technology
John Dix

Security: Lots more work to do

A panel of security experts at the RSA Conference last week said businesses still overlook fundamental security questions when buying or building software.

That's critical because Gartner estimates that 70% of security vulnerabilities are at the application layer (see our coverage of the panel at www.nww.com, DocFinder: 2243).

A survey by the Secure Software Forum, which pulled together the panel for the conference, shows that although companies are beginning to develop secure coding programs, only 27% have integrated security into their development processes.

Because perimeter security can only do so much, this software vulnerability may be responsible for the recent uptick in unauthorized use of computer systems, as shown by the newly released 10th annual "Computer Crime and Security Survey." The study, conducted by the Computer Security Institute (CSI) and the FBI, reports that after declining for four years, the unauthorized use of computers increased in 2005: Of the companies surveyed, 56% reported unauthorized use, up from 53% in 2004. As for the rest, 31% reported no unauthorized use, and 13% were unsure.

That survey also showed that — contrary to the popular notion that insiders are the graver threat — just about as many unauthorized incidents were perpetrated by outsiders as by insiders. Perhaps even more important, a large percentage of respondents simply don't know where the misuse came from. When asked how many incidents came from outside, 35% said they didn't know. Asked the same about misuse from inside, 44% said they were unsure.

The lesson, the CSI/FBI survey concludes, is that "organizations have to anticipate attacks from all quarters."

Despite the increase in computer misuse and companies' uncertainty about what they are battling, the CSI/FBI survey suggests that, based on spending trends, companies seem to think they are doing enough to fight back. Security spending as a percentage of IT budgets remained essentially flat in 2005 compared with 2004.

Forty-eight percent of the respondents spend 1% to 5% of their IT budget on security, 19% spend 6% to 10%, and 8% said they spend more than 10%. Remarkably, 25% said they still spend less than 1% of their IT budget on security.

The take-away is that there is a lot of work left to do.

— John Dix
Editor in chief
jdix@nww.com

Now Research Panel

Network World is putting together a **Technology Opinion Panel** of experts we can turn to for advice on technology developments. Panel members will be asked to participate in at least six 15-minute surveys over 18 months. For their efforts, members will get full survey results and will be entered into random drawings with cash prizes. For more information, see www.nwwbetopdog.com.

Opinions

Americans should come first

While you report that President Bush advocates lifting the H-1B visa cap (www.nww.com, DocFinder: 2227) you ignore that Bush also stated, "Of course, we want every job that's ever generated in America filled by Americans..." (see DocFinder: 2228). Because the H-1B visa provides for the wholesale displacement of qualified U.S. workers by less costly, indentured, foreign workers, Bush is speaking out of both sides of his mouth.

Before calling on Congress to increase the H-1B cap, the president should call for minimal safeguards in the H-1B program, such as those proposed by Rep. Bill Pascrell (D-N.J.) in his Defend the American Dream Act of 2005 (H.R. 4378). Many employers legally hire H-1B workers and then shop them in direct competition with U.S. workers. Other employers force Americans to train their H-1B replacements. A recent study found that H-1B workers earn significantly less than U.S. workers with the same skills.

The Programmers Guild (www.programmersguild.org) represents many qualified but unemployed U.S. tech workers. H.R. 4378 merely requires employers to consider qualified Americans before hiring an H-1B. Mr. President, are you with us or against us?

Kim Berry
President
The Programmers Guild
Summit, N.J.

Deregulation's drawbacks

Regarding Mark Gibbs' call for a national networking policy (DocFinder: 2229): The U.S. market once enjoyed the finest and most sophisticated array of telecom services the planet had to offer. What we had worked, and it worked rather well. It has been a painful death spiral since deregulation.

While I am a staunch advocate of free enterprise and free markets, perhaps it is time that we admitted things may have worked better under a regulated monopoly structure. At least someone actually answered the phone when you called for service. Someone actually showed up who could fix your problem on the first service call and had all the parts they needed.

For large telcos, it hasn't been about service for a long time, and it isn't even about customers any more. It's about someone squeezing one more nickel out of somewhere before leveraging something in yet another round of financing and/or acquisition, and then telling us how life will be better in yet another reconfigured arrangement of otherwise well-meaning individuals who don't quite know what they are supposed to be doing in the first place, because the rules change every day.

George Nezelek
Associate professor, information systems
Grand Valley State University
Allendale, Mich.

Standards vs. practicality

Regarding Scott Bradner's column, "Apple and the value of standards" (DocFinder: 2230): It would also be fair to say that standards are not always the best implementation of a particular technology. When one looks at the complexity of X.400 vs. SMTP, or Skype vs. trying to roll your own Session Initiation Protocol-based solution, the issue is not the standard used but the practicality of the solution.

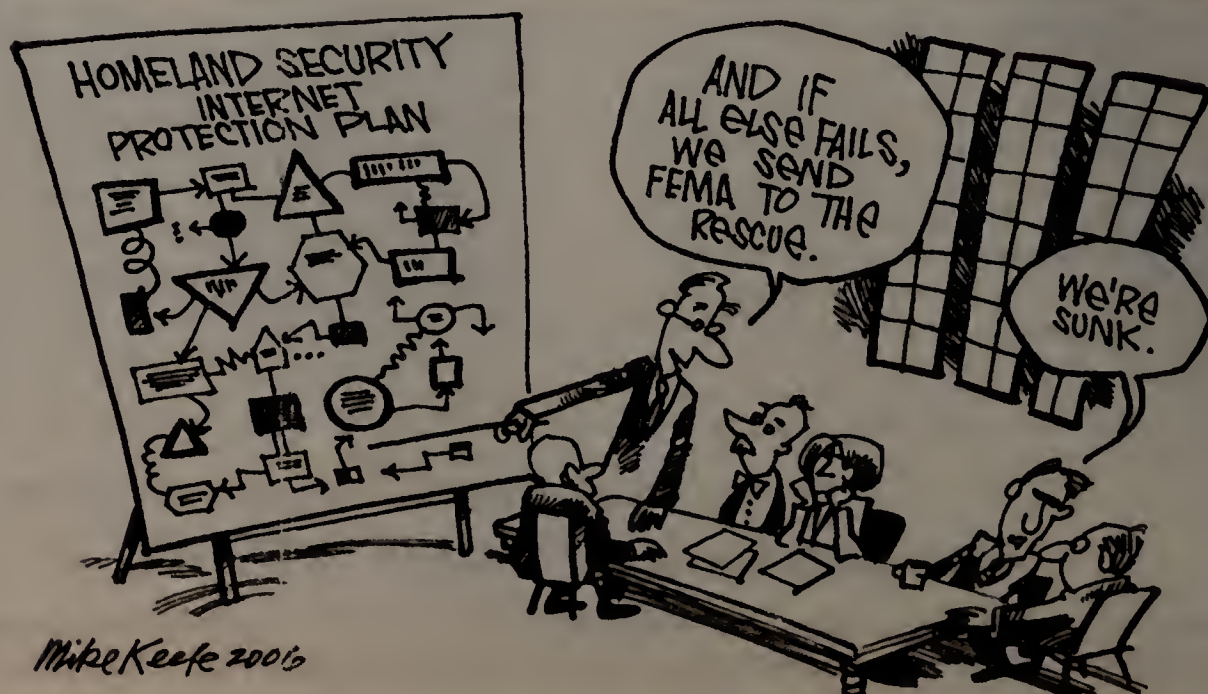
Waleed Hanafi
Consultant
Singapore

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

nww.com

Readers respond

Find out what readers are saying about these and other topics. **DocFinder: 1030**



Mike Keefe 2005

**THROUGH CHANNELS****Ken Presti**

Enter the age of the warm, fuzzy IT integrator

Your technology integrators want to know what keeps you awake at night. Don't worry. They're not going to offer to sing something soft and soothing over your plain old telephone service line at 3 a.m. But many are taking their consultative capabilities to a whole new level.

Value-added resellers, integrators and others in the indirect sales channel are beginning to get much more in tune with the actual business issues their customers face, as opposed to merely touting the benefits of a particular product offering to their overall customer base. The reason is this: As technologies become more complex and more tightly interwoven, changes tend to have more far-reaching effects on networks than ever. Thus, getting it right the first time requires a detailed knowledge of how all that technology will be used in the context of a customer's business.

Ultimately, technology is about solving problems. And if I'm going to solve a problem, I need to have a real good idea of what that problem is. So don't be surprised if your channel partner starts asking a lot of nosy questions about how your company does whatever it does, or if the

sales rep wants to talk to other people in your company about how they do particular tasks. By getting this information first, they're trying to do the right thing.

In fairness to my brothers and sisters in the channel, technology has never been something that could be successfully sold in a vacuum without regard for a customer's needs — at least not by salespeople who cared about their repu-

If I'm going to solve a problem, I need to have a real good idea of what that problem is.

tations and wanted to build long-term customer relationships.

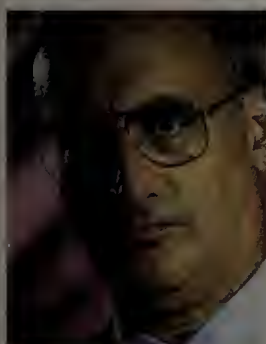
But the necessity to understand customers' business needs is quickly rising, and this is a good thing. Differentiation is getting harder and harder to achieve at the lower end of the Open Systems Interconnection stack. And while technology has always been about delivering the application, that's more true than ever. Adding

value is increasingly vertical. It's about what you do and how you do it.

For example, not long ago, going to work meant traveling to an office. Next, remote access was a good idea for most people, but we had to plug in a lot of stuff — open software and so on. Now, I walk into my home office with a cup of coffee, press one button and everything pretty much comes up dynamically. After getting to this point, how is anybody supposed to offer me anything useful without knowing what I do and how I do it?

The flip side of all this from a corporate customer's point of view involves determining what information and practices you're willing to share, and with whom. Evaluate this in advance. Discuss it with different groups in your organization. But recognize that more information close to the vest gives an integrator less opportunity to leverage technology to keep you competitive over time. So to adapt an old cliché that used to pertain to routing and switching: Share what you can; protect what you have to.

Presti is research director of IDC's Network Channels and Alliances service. He can be reached at kpresti@idc.com.

**YANKEE INGENUITY****Howard Anderson**

China, Incorporated

There are two questions of concern to everyone in the industry: Where will new communications companies come from? Who will finance them? Answer No. 1: China. Answer No. 2: U.S. venture-capital firms.

Last month I attended a board meeting in China and was blown away by the work ethic, systematic approach and hunger entrepreneurial Chinese companies have to become major players in the world market. Chinese technology, while still five years behind ours, is rapidly catching up. Firms such as Motorola and Qualcomm have major beachheads in China — not just because of low-cost manufacturing but also because of first-rate talent. Bill Gates has been quoted as saying his Chinese R&D lab is the second-most productive in the world.

What is not obvious is the financial muscle behind this. U.S. venture capitalists are falling over themselves to invest in Chinese communications companies — and this in the face of 20 years of bad experience, losses, quirky management and questionable ethics. Why? What has changed?

There are two views of China. One says that the first U.S. investors into Chinese telecom companies are going to get clobbered, robbed blind by their partners and find their intellectual property seeping out the door. The second view is, yes, all that may be true, but here is an economy that is growing 10% per year, generates a \$100 billion trade surplus and is going to be the world's greatest communications customer over the next 10 years. This view is to disregard the questionable

ethics and lack of believability in all financial reports, and regard these losses as just the entry cost of joining the club.

Here's an analogy. When hungry penguins are on an ice floe, they need a way to determine if there are sharks in the water. They start jostling one another until one falls in. If the shark grabs this first penguin, the rest resist fishing for a time. If no shark appears, they jump in. Kind of Darwinian game theory.

U.S. venture capitalists are the penguins. Although China is in the Wild West, Draper Fisher

U.S. venture capitalists are falling over themselves to invest in Chinese communications companies.

made a ton of money by investing in Baidu, the Google of China; Greylock Partners and NEA Ventures are the new limited partners in China's Northern Light Ventures; and IDG Ventures and Accel Partners are putting \$250 million into a new fund, IDG-Accel China Growth. Ollie Curme, my former partner at Battery Ventures, has invested in a Chinese motorcycle company and is raising a new China-focused equity firm called Shanghai Ventures. Let me know if you see a trend here.

Look at it this way: It costs \$100 million to build a carrier-class equipment company in the United

States, with most of the money going for engineering. But suppose you could hire 20 electrical engineers for the price of one U.S. engineer. Suppose you also concluded that when the Chinese government buys, it is going to favor domestic suppliers and Chinese entrepreneurs who know how the system works will be the winners.

I sit on the advisory board of 3Com, which has a joint venture with Chinese vendor Huawei — the same Huawei that Cisco sued a few years ago for stealing its router code. So far, the joint venture is exceeding 3Com's expectations.

Capital moves to places where it is welcomed, where returns are good. U.S. venture firms have concluded that investing in telecom in the United States is suboptimal now. But they are willing to add country risk to technical risk, financial risk and market risk, and invest in a country where lawlessness is still rampant, capital always seem to go in but not come out and intellectual property rights seem to fall right behind human rights. They look at a China that is reinventing itself monthly.

Napoleon said, "Do not awaken China." That was almost 200 ago. Today, China is awake and energetic, and has funding from the most deep-pocketed of sources — the U.S. venture community.

Anderson is the founder of The Yankee Group and YankeeTek, and a co-founder of Battery Ventures. He lectures on technology at the Massachusetts Institute of Technology and speaks on technology subjects at meetings across the country. He can be reached at handerson@yankeetek.com.

Today, Dave securely managed servers in the UK, Chicago and St. Louis – without leaving his daughter's recital.

With the best-of-breed security in Avocent DSView® 3 software, the world can finally revolve around you. DSView® 3 software empowers you to securely manage your entire data center – even when you're thousands of miles away. Avocent's exclusive security features, like virtual media support, ensure that only authorized users can access your devices. And we extend secure access and control to your "lights out" operations, too. Let others talk about security. Only Avocent field-proven security gives you true peace of mind.



**Learn how Avocent can help make your data center more secure.
To get this FREE White Paper, visit www.avocent.com/securitytoday**

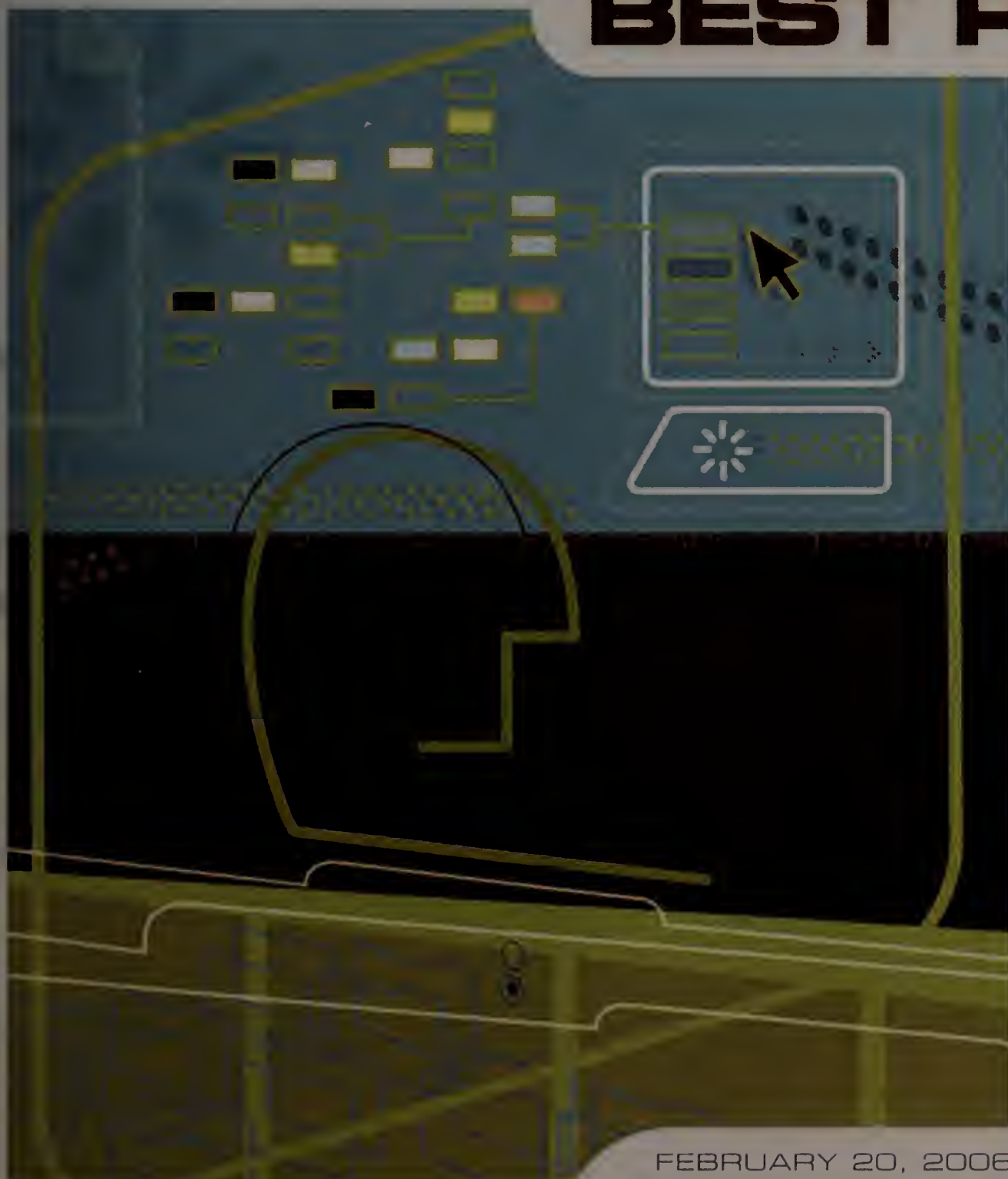
NETWORKWORLD

The New Data Center

Piecing together the next-generation IT architecture

SPOTLIGHT ON:

BEST PRACTICES



The New Data Center concept has matured greatly since we began investigating it three years ago. In this issue, the first of our 2006 six-part series, we reflect on lessons learned:

Early adopters share their hard-learned secrets for working with New Data Center technologies.

Security Q&A: Rhonda MacLean, longtime security information officer turned consultant, offers advice on how to approach next-generation security.

Seven products worth checking out for your New Data Center architecture.

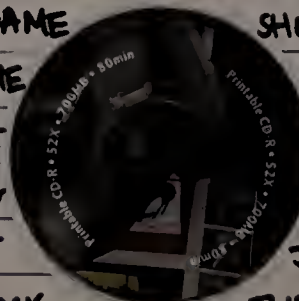
JPMorgan: Capacity on demand proves its net worth.



Proud Sponsor of
the U.S. Olympic Team

THE WORLD ACCORDING TO DOUG

A GOOD DRIVING GAME SHOULD MAKE YOU CAR SICK.
A GOOD FANTASY GAME SHOULD SUCK YOU IN
AT 9 P.M. AND SPIT YOU OUT AT 5 A.M.
BUT A GOOD FIGHTING GAME IS THE HOLY GRAIL
FOR ME. I DON'T JUST WANT TO WIN,
I WANT TO SHOCK THE WORLD WITH
2 PARTS SCI-FI, 1 PART ANIMAL KINGDOM AND A PINCH
OF KUNG FU THEATER. WHO WOULDN'T WANT TO
BE A NUCLEAR-MUTATED PRAYING MANTIS
WITH TWIN SAMURAI SWORDS?



©2006 AT&T Knowledge Ventures. All rights reserved. 36US-120506

Now depends on the most complete and secure, application-aware network
the new AT&T to take on other video game designers from coast to coast.

The new



at&t

Your world. Delivered.

Inside this issue:

The New Data Center

Piecing together the next-generation IT architecture

We continue exploring the business practices, products and technologies giving form to New Data Center architectures. Our third, annual series launches with a spotlight on best practices. Beginning at right, you'll find:

33 BEST PRACTICES FOR THE NEW IT Early adopters give tips for how to pick — and cost justify — New Data Center technologies.

40 MAKING SECURITY A SHARED RESPONSIBILITY Security icon Rhonda MacLean contends that a no-perimeter, cultural revolution is mounting as enterprises build New Data Center defenses.

42 NEW PLAYERS IN THE NEW DATA CENTER These seven products may be right at home in your next-generation infrastructure.

46 CREDIT TO THE NEW DATA CENTER JPMorgan Chase supports 300% growth with a capacity-on-demand platform for applications.

51 THE NEW DATA CENTER DESKTOP Users love to customize their desktops. Your challenge is to work with, not against, them.

Looking ahead:

2/20 SPOTLIGHT ON: BEST PRACTICES

3/20 SPOTLIGHT ON: SECURITY

4/20 SPOTLIGHT ON: STORAGE

5/20 SPOTLIGHT ON: MANAGEMENT

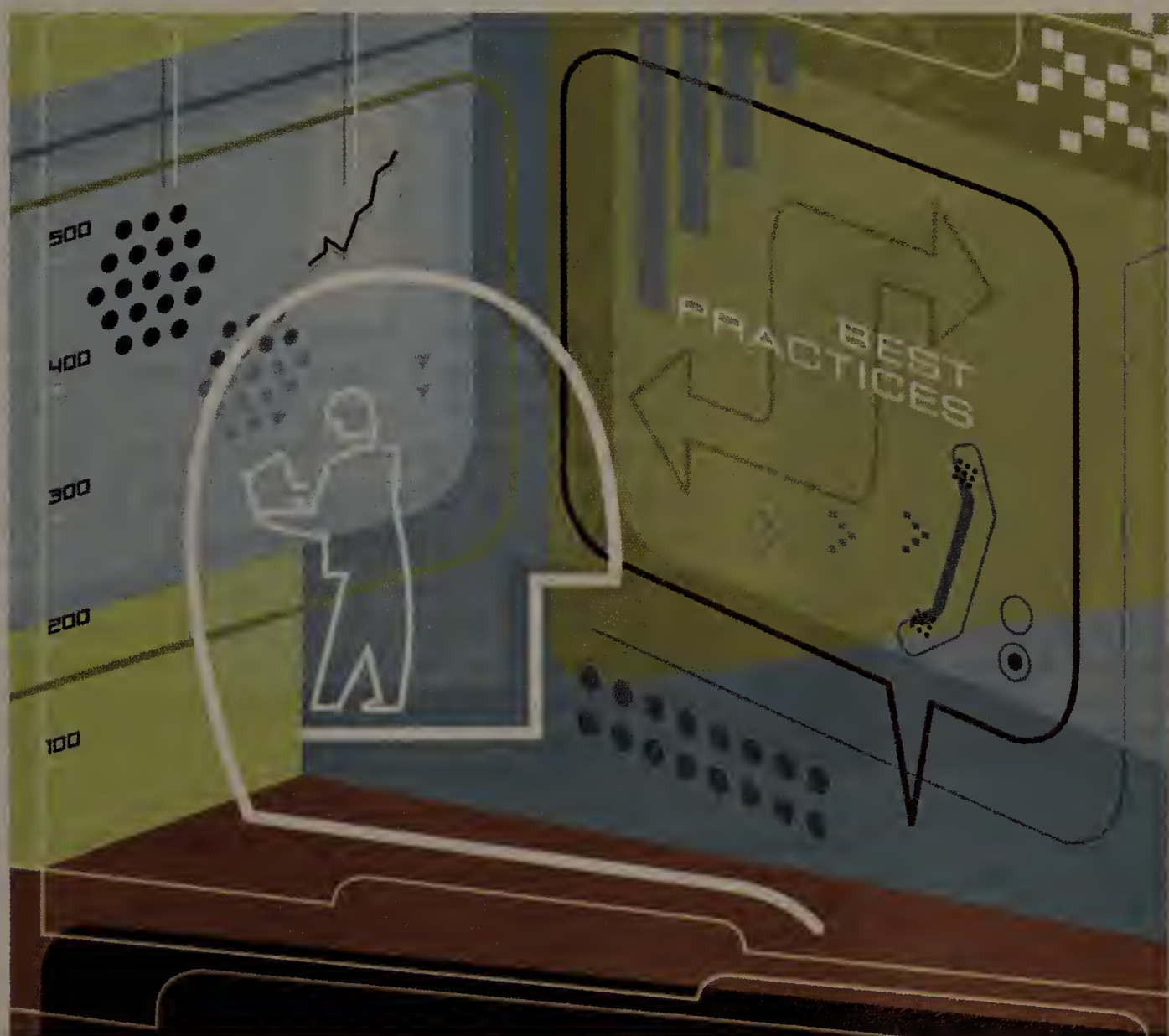
6/20 SPOTLIGHT ON: VIRTUALIZATION

7/20 SPOTLIGHT ON: MOBILITY

Editor: Beth Schultz
Executive Editor: Julie Bort
Designer: Brian Gaidry
Online Graphic Designer: Eric Anderson
Copy Editor: Ryan Francis
Online Copy Editor: Bob Sprague
Network World Editorial Director: John Gallant
Network World Editor in Chief: John Dix
Cover Illustration: CELIA JOHNSON

Best practices for the new IT

Early adopters give tips on how to pick — and cost justify — New Data Center technologies.



BY ANN BEDNARZ

When you put a new application release into production and it brings your servers down despite pre-rollout testing, you know your best practices are begging for an overhaul. Such was the case at competitive game provider WorldWinner, in Newton, Mass. Joe Bai, CIO and vice president of technology, describes the problems that prompted him to begin rethinking IT best practices and investigating next-generation change management tools.

"I was here less than three weeks when we put a release out and it didn't work. It wasn't that the new functionality wasn't appropriate or wasn't performing the way we expected. The Web servers didn't come back," Bai says.

It turned out the version of Apache running in the development and quality assurance environments wasn't the same as the one for the production environment. "The new code base that went out was dependent on code and configuration parameters that weren't there."

The team had to roll back the release and find the discrepancies. "It probably cost us a quarter of a day's revenue," Bai recalls of the 2003 event.

The bigger problem was that such issues weren't unusual for WorldWinner at the time. "We had a number of releases that went out and required eight, 10 or 12 patches before we were happy enough with them to leave them up. That's just not the way we wanted to do things," Bai says.

Over the last two years, Bai transformed the IT department from fire-fighting architects, engineers and developers

to a lean, agile group that keeps the site up, stocked with fresh features, and anticipates application enhancements before marketing staff comes asking for them.

No single project fixed WorldWinner's problems. Rather, Bai launched multiple best practice efforts aimed at implementing better change management practices, stronger version control and other improvements related to software releases.

One tool in Bai's arsenal is mValent's Integrity suite, which automates application configuration management. The mValent technology helps developers recognize configuration-related inconsistencies and automatically makes changes to the underlying application infrastructure. "A lot of things had to come together, but they're all based on really know-

joined Dynamic Communication, a management consultancy.) People tend to focus on the size of a vendor when considering an IT purchase, but size isn't the only determinant of a product's long-term success.

"There are new technology offerings from large vendors that have the same characteristics as new technologies from smaller vendors — they're not well deployed yet, they're not necessarily going to be supported in the long run," Dutton says. "A name-brand large supplier can terminate a product line just as easily as a small company can go out of business."

Ibis, which provides electronic data discovery services, deployed in the fall of 2004 Acopia Networks' storage virtualization switches. These new-style devices attach to network-attached storage (NAS)

are diskless and some that aren't. Albridge Solutions chose the former option, from Egenera, to consolidate and virtualize its server environment.

Egenera's blade servers consist of only processors and memory, while other blade servers have internal hard drives and boot internally, says Rao Pallepati, vice president of IS and security at Albridge in Lawrenceville, N.J., which offers customer data management software for financial institutions. "If you look at other blade servers, they're only saving space and power, they're not really doing much virtualization," Pallepati says.

When it comes to new technologies, "healthy skepticism is good," says Tony Plasil, principal and head of investment technology at STW Fixed Income Management in Carpinteria, Calif.

The specialty bond management firm is an early adopter of Corticon Technologies' business rules management software. STW uses Corticon's rules engine to make sure investment transactions don't violate any account guidelines, such as a customer's limits on holdings in a certain industry. STW integrated the rules engine directly with its trading application so that violations can be detected in real time, before a trade is executed.

Rules engines are generating a lot of buzz, but enterprise IT executives need to be aware of their limitations, Plasil says. "Don't get fooled by the templates, the GUIs. If a vendor shows you how easy it is, be skeptical."

In particular, if a vendor starts referring to alternative methods of defining rules, then listen carefully. "When it starts talking about being able to drop down into some kind of code, be very watchful," Plasil says. "That means you're probably going to be writing a lot of your rules in code, and they aren't going to be supported by the application."

Plasil may have sacrificed some ease of use with Corticon's technology, but he's not limited in the rules he can define. That's just the way Plasil wants it, and he never intended to relegate rule-making tasks outside of IT anyway. "It's much better for our firm not to have any gaps and to have this controlled by a senior business analyst and not have a whole bunch of people able to put rules in."

Help from inside

Part of WorldWinner's application overhaul involved new technologies, such as mValent's Integrity, but personnel and process changes also have made a big impact, Bai says.

One of the lead engineers at WorldWinner recently started a lunch series where people talk about what they're working on — what they think is cool, what they need help with, and the impact of changes to third-party development tools.

It's turned out to be a great venue for swapping ideas and encouraging code reuse, Bai says. The meetings' informality is crucial.

"We're too small to be formal. I've found that these lunch sessions are infinitely more efficient than trying to convince a developer that he needs to document

See Best practices, page 36



The real trick is getting vendors to support their software running in a virtual machine. It's been more of a problem than I would have anticipated it being.

Doug Baer,
systems engineer, Desert Schools Federal Credit Union

ing the environments and getting good, instrumented and measured software out the first time," Bai says.

He advises others who want to shore up application processes used in New Data Center (NDC) architectures to think long term. "Don't try to solve an entire problem at once. Look at it on an ongoing basis — and don't assume you ever have it solved," Bai says.

That's advice to remember as you evaluate the latest technologies aimed at gleaning greater efficiencies from existing IT resources. Virtualization can bolster server and storage utilization rates and reduce administration, vendors say. If consolidation is the objective, blade servers offer space-saving, power-conserving features. A services-oriented architecture (SOA) promises easily combined, modular software components, while application and systems management experts propose tools to streamline and automate manual tasks that bog down corporate processes.

Early adopters who have deployed such NDC technologies learned lessons about what works and what doesn't. Their tips often suggest new ways of doing IT.

Choosing wisely

Before making a commitment, weigh the long-term viability of any new technology, says Cliff Dutton, who is the former CTO at Ibis Consulting. (Dutton recently

appliances and virtualize the files residing on them (see related story, page 42).

When Dutton first talked about plans to virtualize his company's 200TB storage environment, people's reactions made him think he'd taken a crazy risk on a young technology.

But Dutton had clear expectations when he chose Acopia. The switches let Dutton create a single file system across multiple devices, so storage administrators at the Providence, R.I., company can reallocate shares and balance the workload across multiple NAS boxes without disrupting users' access to data.

If Ibis can process more data more efficiently using existing capacity and staff resources, then the company's bottom line grows. "Anything that improves our ability to administer the storage environment has impact on the business," Dutton says.

To reduce the risk of project failure, IT buyers and vendors need to be on the same page. "People need to be very clear about their expectations technically of what a new vendor in their shop is intended to do," Dutton says. "You need to write it down, and you need to get explicit commitment from the vendor to support the achievement of those requirements."

Users also need to understand that not all devices are created equal. Take blade servers, some of which

Application Performance

Solving Application Performance Problems A Proactive Approach

Poor application performance is a problem with which many IT departments are all too familiar. An August 2003 study by Network World and Packeteer found that more than 60% of the IT respondents had experienced significant application performance degradation – a number that climbed to nearly 85% for companies with revenues exceeding \$1 billion.

This problem has negative effects throughout a business, from reduced employee productivity to increased customer dissatisfaction and loss of business. It also significantly reduces IT department efficiency, as staff members are repeatedly pulled away from development projects to troubleshoot performance issues.

Why monitor application performance?

Companies have many reasons for monitoring application performance.

A major insurance company wanted to proactively track compliance with service level agreements (SLAs). The company also wanted to test how infrastructure changes (such as consolidating servers) would affect end-user response times, as well as reducing troubleshooting time by seeing exactly what was happening at the time a problem occurred.

A large financial services company considers good application performance to be an end in itself. "Efficient operation of our networked applications is a key element in attaining our corporate vision," says the company's IT manager. "In addition to delivering high levels of performance to our large user base, we need to make

sure that new applications won't introduce performance bottlenecks before rolling them out."

A major northeastern commercial bank values good application performance because it maintains end users' productivity – so when problems do occur, the bank needs to troubleshoot them efficiently. "We were spending a minimum of 20 hours a month – sometimes up to two or three weeks – trying to diagnose the cause of application slowdowns," says a network engineer. "We just didn't have the staff to keep doing that." A particular problem, he notes, was trying to determine if a slowdown was a network issue or a server issue. "When our network team thought it was a server problem, the server team would often claim it was a network problem," he said. "It was difficult to pinpoint the exact trouble spot."

Fluke Networks SuperAgent to the rescue

All three of these companies have found that Fluke Networks' SuperAgent Application Performance Analyzer provides

"When our network team thought it was a server problem, the server team would often claim it was a network problem. It was difficult to pinpoint the exact trouble spot."

– Network engineer from a major commercial bank

accurate, detailed insight into end-user response times throughout the enterprise. As a result, IT staff can quickly determine whether a problem is network, application, or server related and can rapidly resolve the issue.

For example, according to the insurance company's IT manager, "SuperAgent helps us better serve our end users by being

proactive with application performance issues – and being able to more effectively baseline application performance helps us ensure that we meet our established Service Level Agreements for transaction times."

When problems do arise, he notes that SuperAgent "can mean the difference between a one-hour slowdown and a one-day slowdown."

The financial services company has found that SuperAgent helps with everything from service level management to resolving performance issues to capacity planning. The solution also has virtually eliminated finger pointing and wasted cycles. "Before, we could easily spend four hours trying to determine the cause of the problem," says the director of network operations. "With SuperAgent monitoring the network core, we can identify the trouble cause in about 15 minutes." As a result, development teams spend their time creating and deploying needed applications rather than being bogged down resolving problems.

The commercial bank finds that SuperAgent's performance monitoring capabilities make the IT department more proactive, identifying and resolving problems before users are even aware of them. The tool's enhanced troubleshooting capabilities save them at least 20 hours a month – plus it has made a big difference in the relationship between the network and server teams, replacing finger pointing with cooperation. "Now the server team comes to us when they have a problem and asks us to monitor their servers," says a network engineer. "We also get requests for



troubleshooting help from other business groups in the main office. They all think SuperAgent is fantastic – they are overwhelmingly impressed with its reports." He also describes a case where slow performance of a vendor-hosted application was causing a department to fall behind in its work. SuperAgent identified the vendor's server as the source of the problem, and the vendor – who hadn't previously been aware of the difficulty – was able to quickly fix it.

The bank is so impressed with SuperAgent that it soon will be performing full server monitoring, with reports on server availability and alerts when utilization levels exceed a fixed percentage. It will also use SuperAgent's results to set up SLAs with its branch offices, so it can demonstrate compliance with agreed-upon availability and uptime figures. "We just couldn't do any of this without SuperAgent," concludes the bank's network engineer.

For more information about application performance management solutions visit www.flukenetworks.com/APM

FLUKE
networks

Best practices

continued from page 34

possible use cases for his code, or put something in some documentation store that everyone else is supposed to check," Bai says. "It just doesn't work. But if they chat up a new feature over lunch, it even works better than talking about it with a product manager."

When an NDC project is focused on optimizing business processes and operations, it's particularly important for IT staff, business analysts and users to set the project agenda together, says Robert Salazar, vice president of process management at First Horizon in Irving, Texas. First Horizon selected a business process management (BPM) suite from Fuego, and uses the tools and Fuego's methodology as part of a broad effort to automate, manage and optimize mortgage loan operations.

Viewing a BPM initiative as purely an IT project is short-sighted, Salazar says. By insisting on collaboration throughout the design and development phases, First Horizon had few surprises or forgotten requirements when it completed its first BPM project, he says. "I saw the line-of-business people taking ownership of project delivery, and when we did hit those couple of inevitable bumps along the way, they would resolve them. They were as much interested in the project being successful as we were."

Of course, no matter how prepared IT is, some surprises still crop up post-rollout.

Desert Schools Federal Credit Union in Phoenix uses server virtualization technology from EMC company VMware to cut hardware costs and speed server deployments. The IT department first tried out VMware's Workstation product internally to create a test environment for development projects.

Later it deployed VMware's server products in the IT lab before extending the technology to the company's production application environment.

While IT staffers had familiarity with how the technology works, they learned even more when the rollout advanced outside the lab, says Doug Baer, systems engineer at Desert Schools. Baer's advice to other companies considering a virtual server environment is to be mindful of what an application is doing — not every application is a good candidate for a virtual machine. "SQL is notoriously difficult, because it hits the disk a lot, and disk virtualization is expensive," he says.

In addition, be prepared for resistance from some application vendors. Desert Schools looks first to run each new application on a virtual machine, but some projects can't be run on a virtual machine because of the vendor's support requirements, Baer says.

"The real trick is getting vendors to support their software running in a virtual machine," he says. "It's been more of a problem than I would have anticipated it being."

VMware has a process in place for dealing with reluctant independent software vendors, and that's been helpful, Baer says. Over time, as the technology becomes mainstream, Baer hopes the need for such intervention will disappear. "Being near the bleeding edge, that's kind of what you run into."

When you've identified applications that are a good fit

for a virtual machine, make sure the infrastructure is ready, he adds. "Take the time to design the virtual infrastructure to be as redundant as possible," Baer says. "Go for servers that have lots of RAM, for one thing. Also, have redundant connection to the [storage-area network], redundant power supplies and redundant network connections."

New systems, new roles

No new technology operates as an island — integration for the most part is unavoidable.

STW's Plasil recommends that companies considering deploying a rules engine dig into the details of how an engine can be linked to existing systems before making a purchase. Corticon's technology lets STW incorporate the rules engine into existing business applications as a Web service, for example.

Consider, too, how any new technology fits into the bigger management picture, Dutton says. For example, Dutton has worked to create an integrated performance monitoring framework at Ibis, including software from Mercury Inter-

need to be addressed are: Who owns the service? Who can have access to the service? Who is responsible for maintaining the service? Who pays to maintain the service?"

As a company shifts to an SOA model, job roles also may need to change, Page adds. "Developers will need to begin to think differently about how things are built. Right now many think a service is just taking an old application, placing a service facade on it, and calling it a service. A service needs to be thought through end to end," including proper security and version control, he says.

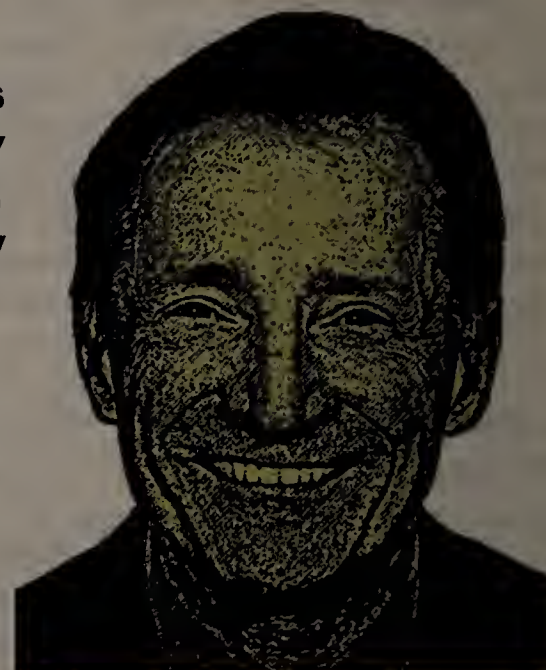
"Some roles will change, others will just take on responsibility as more and more services come online. For example, service security and governance could become full-time positions," Page says.

Likewise, using BPM tools and methodologies requires a different, broader way of thinking than some developers and business systems analysts are accustomed to, Salazar says.

"You have developers who tend to want to be very heads-down, focused on snippets of code. And you have business systems analysts whose analysis is always within the con-

“When it comes to rules engines don’t be fooled by the templates, the GUIs. If a vendor shows you how easy it is, be skeptical.”

Tony Plasil,
principal and head of investment technology,
STW Fixed Income Management



active that lets IT staff view a broad picture of data center conditions and spot potential problems.

Also make sure that any new gear added to the NDC architecture is compatible with the existing framework, Dutton says. "If you leave islands of functionality that are not under the umbrella of performance management monitoring, then you're going to have holes in your visibility."

If a company is building an SOA, tools for managing, securing and monitoring services are important, says Tyrone Page, senior software architect at JetBlue Airways in New York. "If you have many services supporting thousands or even millions of requests, you need to be able, at a glance, to see what is going on with those services. You need to be able to see if the service is up, how many unauthorized requests are coming in and where they are coming from, and you want to be able to throttle and redirect traffic based on [service-level agreements]."

The need for governance, in particular, shouldn't be underestimated. The hardest part about moving to an SOA is governance, Page says. "When services are built and consumed at the enterprise level, some of the issues which

text of the constraints of the system that they built," Salazar says. "In order to do this work, you have to break out of that."

One way to help along the training process is to use the expertise of the vendor. During First Horizon's first two BPM projects, an architect and developer from Fuego worked with internal staff to ensure the design and process decisions made went along with the best practices methodology Fuego espouses.

Having access to them made the knowledge-transfer process more significant, Salazar says. "I wouldn't expect as an organization for us to know what to do and not to do the very first time we tried." ■

nww.com

No love lost

Discover why IT executives say that new technologies need new best practices. More best practices can be found online.

DocFinder: 2236

WAN Application Performance

Application	Performance
ERP	CANCELLED
CRM	DELAYED
GAMING	ON TIME
P2P	ON TIME
VOIP	DELAYED

Application	Performance
NOTES	DELAYED
SIEBEL	CANCELLED
EMAIL	ON TIME
CITRIX	DELAYED
SKYPE	ON TIME



YOUR BRANCH OFFICES ARE GROUNDED — AGAIN.

Eliminate network delays and keep your enterprise on-schedule.

With Packeteer WAN optimization appliances, your business-critical applications are always cleared for take-off. They give you monitoring, control, acceleration, and management all in one, convenient appliance. What's more, you can control recreational and malicious traffic to further improve employee productivity. The result? Faster access to business-critical applications and happier branch office users.

Learn how to keep your network flying. Go to www.packeteer.com today.



Only Packeteer gives you:

- Layer 7 visibility into 500+ applications
- Flexible, policy-based control so you can guarantee QoS for branch offices
- The acceleration and compression capabilities essential to maximizing application throughput

THE BIG HOSTIN

Compare 1&1 with other companies and you'll see that not all web hosts are created equal. You want **the most web for your money**, so you need a web hosting specialist. 1&1 focuses all its resources on bringing you the most complete hosting packages at some of the best prices in the industry.

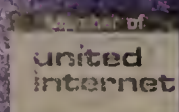
It's official: the gloves are off! With **over 5 million customers worldwide** and more than a decade of web hosting experience, 1&1 stands head-to-head with all the industry heavyweights. **Compare for yourself and see why 1&1 is the world's #1 web host.**



HERE'S WHY 1&1 IS THE CLEAR WINNER IN WEB HOSTING:

- ✓ Named 2004 Hosting Growth Leader by Netcraft
- ✓ World's largest web host according to Netcraft
- ✓ 5 million websites hosted worldwide
- ✓ Over 15 years of industry experience
- ✓ Innovative web applications
- ✓ 200 in-house programmers
- ✓ Unsurpassed connectivity
- ✓ One-stop shop for all your website needs
- ✓ 24/7 toll-free phone & e-mail support

Netcraft Ltd - www.netcraft.com



1.877.GO1AND1

G SHOWDOWN

1&1 – THE BEST HOSTING PACKAGE

**FREE
DOMAINS
INCLUDED**



	1&1	YAHOO!	Go Daddy
	HOME	STARTER	DELUXE
	\$4⁹⁹	\$11⁹⁵	\$9⁹⁵
Price per month			
Included Domains	2	1	0
Web Space	10,000 MB	5,000 MB	10,000 MB
Monthly Transfer Volume	500 GB	200 GB	500 GB
E-mail Accounts	1,000 IMAP or POP3	200 POP3	1,000 POP3
Mailbox Size	2,000 MB	2,000 MB	10 MB
Website Builder	12 pages	✓	freeware
Photo Gallery	✓	✓	✓
Dynamic Web Content	✓	✓	—
Web Statistics	✓	✓	✓
Chat Channels	✓	—	✓
Database	25 MySQL (Linux)	MySQL support	25 MySQL (Linux)
Search Engine Tools	✓	Extra charge applies	Extra charge applies
PHP Support (Linux)	✓	✓	✓
Perl Support (Linux)	✓	✓	✓
Software suite (\$600 value)	✓	—	—
90-day Money Back Guarantee	✓	—	—
Support	24/7 Toll-free Phone, E-mail	24/7 Toll-free Phone, E-mail	24/7 Phone, E-mail

Plus \$1.99 per year with non-domain purchase from Go Daddy

You'll pay from \$29.95 per year additional with Go Daddy

VALUE

1&1 delivers the best value for your money!



© 2006 1&1 Internet Inc. All rights reserved. Prices based on a comparison of regular prices effective 12/22/2005. Product and program specifications, availability, and pricing subject to change without notice. Visit 1and1.com for details. Go Daddy is a registered trademark of Go Daddy Software, Inc.; Yahoo! is a registered trademark of Yahoo! Inc.

FOR MORE DETAILS VISIT **1and1.com**

Spotlight on best practices

Making security a

shared res

Security icon Rhonda MacLean contends that a no-perimeter, cultural revolution is mounting as enterprises build New Data Center defenses.

BY JOANNE CUMMINGS

As enterprise IT executives embrace the concepts of open, logical, Web-based computing, they also must rethink their security best practices. In New Data Center (NDC) architectures, security needs to go beyond the borders of the enterprise to encompass partners, customers and even users. Rhonda MacLean, former head of security for Bank of America and, before that, Boeing, today takes on that tall order for a variety of enterprises. She has parlayed her experiences into a position as principal of the year-old MacLean Risk Partners and now spends her time advising clients about how to quantify and mitigate security risks in today's NDC environment. In this Q&A, she shares her latest thinking on security best practices.

As enterprises take more logical views of computing and build NDC architectures in support of global supply chains, how do security best practices need to change?

Global supply chaining is causing de-perimeterization of our IT environments. There may still be some glass houses out there, but the processing is going on virtually all over the world. And this is a world in which sensitive information needs to be shared and collaboration needs to be enabled. So enterprise security is not about withholding access anymore, but about having really good processes and technologies and people to enable sharing.

Security best practices need to be adopted universally — cross-company, cross-border, cross-partner, cross-customer. Security has to be a shared responsibility among the primary organization and its suppliers, partners and customers.

This is going to take some significant cultural evolution. For years we said, 'Security is the weakest link in the chain.' Well, when you controlled the whole chain, the world was simple. But that isn't the case anymore. Organizations today are doing virtualization, grid computing, Web services or open source code — all these things are occurring and converging at the same time. Embracing the notion of shared responsibility and having robust governance and assurance processes are going to become more important [than ever].

So security needs to be a collective responsibility?

A good way to think about this is by comparing it to healthcare and insurance. If you're a smoker, your premiums are high. But your doctor advises you to quit smoking, exercise more and eat more broccoli, [and your insurance company says] your premiums may go down if you do these healthier things, because you'll then be at lower risk. So you take personal responsibility and do so. This shows the chain effect, if you will, of everybody working together to make sure that you're managing your health.

The computing environment is a lot like that. We're in this ecosystem where everyone needs to have some responsibility for the health of the ecosystem.

Security best practices need to be adopted universally — cross-company, cross-border, cross-partner, cross-customer.

RHONDA MACLEAN
principal, MacLean Risk Partners

nww.com

The new NDC

Find out how MacLean sees the role of chief information security officer shaping up for the New Data Center, and more.

The Q&A continues online, at www.nww.com; DocFinder: 2221

COMING NEXT WEEK



THE

BEST PRODUCTS ISSUE

BEST OF THE TESTS

*Top 10 out of
200 tested*

CATEGORY-BREAKERS

Five that raise the bar

FAVE RAVES

*Five that readers say
they love*

AND MORE!

Apply online at apply.nwww.com/B6

NETWORKWORLD

PRIORITY CODE

B6

**Get your own Network World
FREE subscription!**

**51 FREE issues
a \$129 value!**

- Up-to-the-minute industry news
- New product reviews
- Expert analysis and opinion
- Insider strategies for enterprise IT success
- And more!

NETWORKWORLD

PRIORITY CODE

B6

Apply online at apply.nwww.com/B6

responsibility

Does this apply to governance and assurance as well?

Governance is complex. Obviously, it starts with company policy. And you've got legal and regulatory obligations wherever you're doing this business. Those are givens.

I know the financial industry has an initiative that it's working toward for vendor management, around the whole compliance of vendors that financial companies rely on. Companies want to get some assurances from their vendors about security practices. What are their business-continuity practices? And how much resiliency is built in? I want to make sure my company is online 24 hours a day, seven days a week, 365 days a year. So I need to know the best practices of the companies in that supply chain, because today I'm dependent on delivering those services through a cast of characters.

And if this third party can't meet your standards, then you don't work with it?

That's right. The real winners will be the ones who know how to do that — because of the criticality and the competition to have robust capabilities.

So the largest companies will push these standards and assurances?

They will. And the more companies get asked about their policies, the more governance and oversight they see, the more they'll begin to build security in upfront. If you're going to be a part of this global supply chain ... integration of security and resiliency should be an essential part of every product and service. Retrofitting and recovery is much more expensive.

Do we have all the pieces necessary to secure NOC architectures?

The basic security concepts around protect, detect, respond and recover are still good. And so the technologies that revolve around them are still important. Now, to support the virtualization of this infrastructure, we need to have some investment as well as maturing and evolving of capabilities that we've talked about for a long time.

[For example, we need] a real robust identity and access-management capability that's easy to operate in a de-perimeterized, global environment. This means federated identities, which will be tough, because those involve policy agreements. A lot of work needs to be done there.

Also, [we need to better understand] the concepts of data management and data-rights management. Where is your data? Who has access to the data? What is the data

going to be used for? What does the data retention look like? What is the source of the truth?

The concept of software assurance needs additional work, too, given the emerging world of allowing more open source. Depending on where you are — if you're in China or South America — open source is just how you do business globally. So how do you know whether the software you're using contains open source code or malware? Is it hidden, or is it just sloppy code?

That, operationally, can have significant consequences. The associated risk warrants some investment. We need to better understand how to provide and deliver on software assurance.

Is there a security best practice that tends to be overlooked in the NDC?

Oftentimes the security or the risk professionals are not at the table when organizations are talking about new products, services or capabilities.

Why? Are they seen as naysayers?

I don't think so. Most understand this need to be able to share sensitive data and the need for collaboration. The issue is more just setting up good processes and good relationships.

I was fortunate enough to work in two great companies where security was considered integral and involved a lot of collaboration. We worked hand in hand with the business. I don't think everybody has that. I know when I talk to many chief information security officers, one of their biggest complaints is that they don't often know something is going on until after it's happened.

That's the real missed opportunity — to leverage that expertise. [Companies would see a big gain] if they were able to get some of the security best practices integrated into the existing [product] life cycles. Security would become an integrated part of the process.

What do you say to companies that balk at the potential expense?

Expense depends on the business, its risk tolerance and the product and service. That's why one size does not fit all. To leverage its investment, a company needs that [CISO] expertise at the table — someone who has a balanced understanding of the risk appetite, the threats and vulnerabilities and, most importantly, what the customer expects. If you really think through these as you develop New Data Centers and associated processes when you've virtualized the data centers, you can in the long run save the company money. If you do it right the first time, it's generally cheaper.

Isn't the cost of security difficult to quantify?

I'm a big believer in metrics and measurement. Financial institutions are well versed in the discipline of credit and market risk. They have scientific, quantitative approaches to figuring out their exposure in a credit or market risk. Right now, the concept of operational risk is just emerging. There are some quantitative capabilities out there, but there's a lot of folk art too.

There are some companies that do threat assessments and publish reports — Symantec puts out a very good threat assessment, for example. We need to start getting some real metrics and measures around risk assessments that have been done. We need these so that we can start quantifying as well as prioritizing the investment a company might need to make. It will help leverage an investment, so you're not overdoing or underdoing, but you're adequately covering it.

The more information we can get about the risk appetite, the risk profile of an organization — how much is within the walls, outside the walls, are you using a lot of open source? Your profile could change based on the way you're doing business. Knowing that and being able to look at your organization and the process flows is where you can get innovative.

From your experience, what would you offer as a lesson learned regarding security best practices?

One of the challenges in this business is getting to the root cause. So not jumping to conclusions before you have your facts and data is important. As you communicate what's going on, it's OK to say, 'I don't know yet.'

[Also important is] working with executives and partners and being in this together to stay calm through the crisis and keeping your wits about you and being willing to go through the process. I look at a lot of this as process — collecting your facts and data and then acting on facts and data.

The key is to be flexible, innovative and build strong relationships — relationships are so critical in this equation — to be able to call on the people you need, to get their support. Everybody working together is critical to the success. It's all about relationships, [and even more so for the NDC], because the opportunities and challenges may not be within your own organization or corporate walls. We really need to have this culture of shared responsibility.

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@comcast.net.

NDC tips & tools

New players in the New Data Center

At-a-glance

These seven tools represent some of the innovative technologies for the New Data Center.

Acopia Networks

Adaptive Resource Switch

Type of tool: Storage virtualization switch. **What it does:** Improves storage utilization and lowers costs.

AmberPoint

AmberPoint 5.0

Type of tool: Service-oriented architecture management software. **What it does:** Analyzes and monitors performance; handles exceptions and secures SOA environments.

DataSynapse

GridServer Virtual Enterprise Edition

Type of tool: Grid computing software. **What it does:** Grid-enables applications; focused largely on the financial services industry.

Enigmattec

Execution Management System

Type of tool: Policy-based automation software. **What it does:** Intended to codify human decision-making processes to automate management in SOA environments.

iConclude

iConclude Repair System

Type of tool: Management automation and diagnosis platform. **What it does:** Automates repair of problems based on predefined scripts; provides diagnostic aids.

Mirage Networks

Mirage NAC

Type of tool: Network access control software. **What it does:** Identifies vulnerabilities in clients before they connect to the network as well as anomalies while they are connected.

Softtricity

Softtricity Desktop

Type of tool: Application virtualization software. **What it does:** Centralizes Windows applications and streams them to clients on an as-needed basis, for simplified management and deployment.

These seven products may be right at home in your next-generation infrastructure.

BY PAUL DESMOND

As companies migrate to New Data Center architectures, it stands to reason that they'll look at a wide range of vendors with new tools to help. Here are seven promising products.

Acopia Networks' Adaptive Resource Switch

As the volume of data grows, so do the challenges surrounding data management, from adding storage devices to increasing the staff to manage them. Acopia Networks' Adaptive Resource Switch (ARX) can help out. The in-band ARX front-ends network-attached storage (NAS) devices and other file servers, acting as a proxy for downstream clients. ARX provides a single global namespace for multiple file storage systems, resulting in a virtual storage environment. Virtualization provides transparent data migration, load balancing and a tiered storage infrastructure that delivers on an information life-cycle management plan, says Tony Asaro, head of Enterprise Strategy Group's storage lab.

"NAS virtualization is a hot topic, and [large enterprises] all say they are either evaluating or considering Acopia ARX," Asaro says. Competitors are EMC, via its Rainfinity acquisition, and start-up NeoPath Networks, which is likewise getting traction, he says.

Acopia's customer list includes Boston.com, Goldman Sachs, Merrill Lynch, Toshiba and Warner Music Group.

Ibis Consulting, a Providence, R.I., firm that helps customers with electronic discovery in response to litigation and regulatory compliance, has been using ARX products since January 2005. Ibis creates a virtual path name for each of its projects and assigns some amount of storage space, but it never knows for sure how much storage each project will require. Its two ARX switches have solved that problem, says Cliff Dutton, who had been Ibis CTO before joining Dynamic Communication, a management consultancy, early this year.

"If additional storage is required, it happens automatically," he says. "Ibis has avoided about 30% of the costs it would otherwise incur in managing the storage environment, which consists of more than 200TB of data."

Spreading data across multiple NAS systems eliminates I/O bottlenecks. And the ARX gear creates multiple copies of all the data processed for more back-up security, Dutton says — with no throughput overhead hit.

AmberPoint's AmberPoint 5.0

Enterprises that invest in a service-oriented architecture (SOA) often find their existing management tools aren't prepared to monitor such a dynamic environment. AmberPoint's SOA management software addresses a number of challenges, including performance analysis, exception management, validation of function and performance, and secure service delivery.

AmberPoint customers include Best Buy, Fujitsu, Kaiser Permanente, Motorola and Northern Trust. Many of the company's executives come from Forte Software, an enterprise application integration vendor acquired by Sun.

"I like AmberPoint's approach," says Judith Hurwitz, president of the consultancy Hurwitz & Associates. "It's really done its homework to look at what it means to manage an environment where piece parts and components that you're applying to a problem change regularly," she says.

With competitors such as Actional and Blue Titan Software, AmberPoint must strike the right partnerships, such as with major systems management players and other leaders in the SOA space, including HP, IBM, Oracle and SAP, to maintain market leadership, Hurwitz says.

In the meantime, AmberPoint is helping MedAlert identify bottlenecks and ensure its Microsoft-based Web services infrastructure meets service-level agreements, says David Harrington, CTO for the MedAlert Foundation in Turlock, Calif. The nonprofit uses Web services to keep data in sync between clients' E-HealthKey USB storage devices and its central data repository.

"Implementing the service interfaces between E-HealthKey and our repository was really an exercise in connecting two legacy databases," Harrington says. "AmberPoint was the best dashboard of instrumentation for us to see how we were doing."

AmberPoint software also decrypts and encrypts messages in transit and provides a virtualization capability so that multiple MedAlert Web services can be aggregated to look like a single service to outside partners, thus simplifying integration and adding security.

DataSynapse's GridServer

The idea of taking collections of low-cost computers and pressing them into doing the work of a mainframe fits well

See Tools, page 44



IBM®

_THE INVASION

_DAY 11: These commoditized clones have taken over. Haven't been outside in days. Living off instant coffee and a tin of breath mints. :-C

_DAY 12: They're breeding. Multiplying. Multiple apps. Multiple databases. They must have a queen.

_Help...me....

Tools

continued from page 42

with today's do-more-with-less ethic, says Dan Kusnetzky, a vice president at IDC. With its GridServer Virtual Enterprise Edition, DataSynapse is focusing on one of the market segments where the technology is having the most success: financial services. Customers include Credit Suisse First Boston, Goldman Sachs and Wachovia.

"It doesn't require rocket scientists to make it work if you already know Java, Visual Studio, C++ or one of the other languages [DataSynapse] supports," Kusnetzky says. "It has tools to help people in [the financial services] arena develop and deploy applications."

DataSynapse isn't focused solely on financial services companies; customers also include human resources firm Hewitt Associates and Nationwide Mutual Insurance Company, for instance. But having some focus is important for a smaller company in the crowded grid market. Some 30 vendors address various pieces of the puzzle, Kusnetzky says. Depending on the proposal, DataSynapse could run against HP, IBM, Microsoft or Sun, or relative old-timers like Platform Computing.

Powerex, which markets wholesale energy products, has had impressive results with GridServer. The Vancouver company is using it to run a risk analysis application from SunGard dubbed ZaiNet Monte Carlo Value at Risk. Jeff Gingera, IT director and security officer for Powerex, previously ran ZaiNet on an HP DL560 four-way computer. With ZaiNet now on the grid, an average report runs about 15 times faster, while the most complicated is about twice as fast. "One used to take six to 10 hours; it now finishes in 8 to 9 minutes," Gingera says.

DataSynapse faces the same challenge as any grid player: finding ways to segment older applications so that they can take advantage of grid computing, Kusnetzky says.

DataSynapse is well-positioned in that regard, Gingera says, because it operates at the sub-operating system level. This means an application sees only one operating system instance, not the multiple CPUs in the background. "That makes it easier to port applications to the grid," he says.

Enigmatec's Execution Management System

Enigmatec's Execution Management System (EMS) tries to minimize the number of people involved in managing networks. All sorts of management tools can send an alert when something goes wrong, but finding a fix often requires a lot of decisions. EMS is intended to help organizations define the steps they take to address a problem — say, failing over an application to a back-up server — then execute those steps without human intervention.

EMS works with its own network of agents and a company's existing management and provisioning tools to identify problems and deploy resources. It is particularly focused on tasks associated with NDC architectures such as utility computing and virtualization. "It's a pretty powerful story," says John Humphreys, research manager for IDC, noting that EMS enables companies to better leverage management tool investments they've already made.

JPMorgan Chase, one of seven customers, uses EMS to address system failures quickly, says Shawn Findlan, vice president for global credit trading and global emerging markets for the New York firm. "If we have a failure in a primary data center, an alert will go off and the Enigmatec

software captures that. In a few minutes, Enigmatec will automatically migrate that application to a new data center with adequate resources," he says.

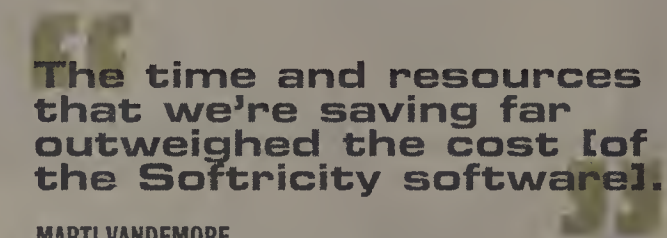
Policy-based automation for SOA is a developing market, Humphreys says. Competitors include other young companies: Cassatt, Sychron and uXcomm. BMC Software, HP, IBM and Sun are expected to move into the market.

iConclude's iConclude Repair System

iConclude, too, is trying to address management problems in the New Data Center. Repair System, an agentless platform, automates the repair of some problems based on pre-defined scripts. And, it provides diagnostic aids to speed problem resolution by administrators or staff.

"This is a firefighter's-friend kind of play," says Dana Gardner, president and principal analyst at Interarbor Solutions. Rather than simply reacting to problems as they occur, Repair System "provides triage and automation."

The product also is intended to help customers define and adhere to repeatable problem-handling processes, such as those defined by the IT Infrastructure Library.



MARTI VANDEMORE,
vice president, Heartland Financial USA

iConclude launched Repair System last November. Its only named customer is NSRI USA, a subsidiary of a large Japanese logistics company. The company is led by Sunny Gupta and other veterans of Mercury Interactive and its acquisition, Performant. "Sunny's had a good track record of success," Gardner notes. "iConclude can be given a serious look in an RFP process." Such a process could include a number of competitors, such as Indicative Software, Opnet Technologies and ProactiveNet, as well as HP, IBM, Microsoft and Red Hat.

NSRI began looking at Repair System because it is moving from two to a single operations-support center. "I'm looking for any way I can to automate functions," says Richard Dixon, vice president of NSRI.

The company came up with an immediate use for Repair System. NSRI often gets electronic data interchange (EDI) transactions that it can't match to its systems, usually because of an invalid customer or location code coming from an overseas region. Previously, a programmer would fix the data. Using Repair System, the company developed a script to analyze problem EDI transactions and determine whether they have a customer- or location-code problem. If so, Repair System generates an incident report in HP OpenView Service Desk and sends the source an e-mail describing the problem and how to fix it. "[iConclude] totally took away the need for a programmer to get involved," Dixon says.

Mirage Networks' Mirage NAC

Network-access control tools are often touted for their ability to ensure that potentially vulnerable clients in remote locations don't connect to a network. Mirage NAC takes that concept a step further.

It not only conducts pre-admission checks, using the

McAfee Foundstone Vulnerability Management System, but also continually checks for anomalous behavior while clients are connected. Any offenders are isolated. Mirage detects anomalous behavior by maintaining a map of unused IP addresses and sending an alert whenever a device tries to access one of them, says Chris Liebert, senior analyst with The Yankee Group. "It's a good approach," she says.

Customers include high-tech companies National Instruments and OnDemand Software; law firm Hogan & Hartson; and Pennsylvania State University. Users report Mirage NAC has dramatically decreased the time it takes to find problem devices on their networks, Liebert says.

Chris Hanson, IT project manager for Kern Schools Federal Credit Union in Bakersfield, Calif., is one such user. What he likes best about Mirage NAC is that it's agentless. "So many security products want you to have their special client to watch this, that and the other," he says. "Pretty soon it becomes a nightmare."

Competitors include Arbor Networks, Cisco, Lancope and Mazu Networks. Mirage's biggest challenge is to improve the NAC's reporting capabilities and to make it more selective about what alerts it reports on, Liebert says.

Softricity's Softricity Desktop

Managing Windows applications is no picnic, between the servers that run various components and the potentially massive amount of often-flaky client code on each desktop. The idea behind Softricity Desktop is to get rid of most of that code by centralizing all applications and having them delivered to clients as services on an as-needed basis. If that sounds like the old thin-client song that Sun CEO Scott McNealy has been singing for years, it pretty much is. The key difference is that Softricity makes it work for Windows applications such as Office and Exchange that most companies rely on day to day.

"It's really about managing the complexity of Windows," says Interarbor's Gardner. Softricity Desktop eases updates, patches and deployment when managing dozens to hundreds of Windows applications, he says.

That's been the case for Heartland Financial USA, a bank-holding company in Dubuque, Iowa, that as of late last year was supporting about 700 of its 1,000 users from the Softricity platform. The help desk now spends about 80% less time grappling with application issues, says Marti Vandemore, vice president of IS. "Now, we know the application works," he says. Even better, he adds, "in just a few minutes, we can deploy [an application] to 100 users."

The product also simplifies disaster recovery planning because server images are independent of the hardware on which they run and can be restored easily on another server. "The time and resources that we're saving have far outweighed the cost" of the Softricity software, he says.

Among the challenges Softricity faces is that it currently works only with Windows applications, Gardner says. Another drawback is that one virtualized application can't currently call another, such as when an Office application wants to invoke an Adobe Acrobat reader, says Shane Nicely, assistant vice president of IS at Heartland Financial. His overall impression, however, is that Softricity has "worked much better than we expected."

Desmond is president of PDEdit, in Southborough, Mass. He can be reached at paul@pdedit.com. Senior Editor Denise Dubie contributed to this story.



i have control. i have a new IBM System i5.™

i control complexity. The one-of-a-kind System i5 is server, storage, software, database, and security, all in one.

i control reliability. The System i5 platform helps keep you up and running so you can focus on your business, not your I.T.

i control flexibility. This uniquely customizable platform lets you run multiple operating systems (Windows®, Linux®, AIX 5L,™ and i5/OS®) simultaneously.

i control my I.T. destiny. IBM Systems are a range of innovative servers and storage — like the System i5 — designed to make your infrastructure and your life simpler.



IBM.COM/**TAKEBACKCONTROL**/i5

*Requires IXS or IXA to run Windows. Linux, Microsoft Windows and AIX 5L operating systems must be purchased separately. IBM, AIX 5L, System i5, i5/OS, and Take Back Control are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Linux is a trademark of Linus Torvalds in the United States, other countries, or both. Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both. Other company, product and service names may be trademarks or service marks of others. ©2006 IBM Corporation. All rights reserved.

Inside the NDC

Credit to the New Data Center

JPMorgan Chase supports 300% growth with a capacity-on-demand platform for apps.

BY DENISE DUBIE

It's no surprise that financial services giant JPMorgan Chase is a pioneer in the quest for automated, virtualized New Data Center technologies. With assets of \$1.2 trillion and operations in 50 countries, the company is engaged in multiple initiatives all working toward the common goals of maximizing IT resources, reducing costs and speeding performance. Examples include grid computing, policy-based management of virtualized

enough. JPMorgan Chase predicted the business Findlan supported to grow by 300% in 2005 and needed its recently consolidated infrastructure to support that growth.

"Our challenge was to add 300% capacity and optimize the environment to enable less downtime and to failover more quickly for less money," Findlan says.

While JPMorgan Chase had virtualized its compute resources via a grid — dubbed the Compute BackBone (CBB) — Findlan was now looking to virtualize the application and database layers. Thus Findlan's project, the Credit Derivatives Infrastructure Refresh (CDIR), was born. Instead of running scheduled jobs across resources using virtualization tools from VMware or Sun, Findlan wanted an application to be able to tap server, database and other components in an entirely virtualized environment that could be created on demand. When a trading application needed more server or database resources, this flexible infrastructure would create an end-to-end application environment on the fly to support the application's latest needs.

"If the application can utilize the CBB for compute services, it will be sent to the CBB," Findlan says. "If there was a failure in the primary data center, we wanted to be able to migrate an application to an [on-demand] infrastructure that doesn't exist on a day-to-day basis."

Virtualizing application resource pools

Findlan realized he'd need a tool that could create virtual pools of resources and then automatically distribute those resources when business needs fluctuated. His search led him to relative newcomer Enigmtec, which provides management software that can automatically distribute resources based on preset policies.

Dubbed Execution Management System (EMS), the software detects system failures and load changes on servers, and can fix problems using preset policies, Enigmtec says. The software also can separate an application from dedicated server resources and apply other available resources to the application.

EMS uses distributed agents to monitor system performance, measure actual performance against preset thresholds and take action when performance degrades. When action is required, Enigmtec will automatically, say, move CPU resources into an application environment to meet the demand for more capacity.

Enigmtec software doesn't rely on a centralized management console to configure agents, take corrective action or store data. IT installs the agents on managed sys-

See JPMorgan, page 48

"If there was a failure in the primary data center, we wanted to be able to migrate an application to an [on-demand] infrastructure..."

SHAWN FINDLAN,
vice president, JPMorgan Chase

nww.com

More underway

Find out about a second New Data Center project JPMorgan has undertaken to improve application mapping and change management processes.



resources and automated application mapping and change control. As these projects evolve, they will ideally converge and enable the New York-based financial services giant to conquer tomorrow's IT challenges.

Shawn Findlan, a vice president responsible for the global credit trading infrastructure, in early 2004 started to explore how to boost his department's infrastructure. Pressed with performance demands and constricted by costs, Findlan realized he needed to revise his infrastructure rather than build out new additions. At that time, the IT department had just completed a consolidation project that reduced costs by 25% to 30%. That was good, but not good

Choose
and receive
any of these 3 valuable
APC white papers within
the next 90 days for FREE!

<http://promo.apc.com>

Key Code
i510x

(888) 289-APCC x3596 • FAX: (401) 788-2797

APC
Legendary Reliability®

Choose and receive any of these 3 APC white papers within the next 90 days for FREE!

- ☐ White Paper #40 "Cooling Audit for Identifying Potential Cooling Problems in Data Centers"
- ☐ White Paper #42 "Ten Steps to Solving Cooling Problems Caused by High Density Server Deployment"
- ☐ White Paper #117 "Network-Critical Physical Infrastructure: Optimizing Business Value"

☐ **YES!** Please send me my FREE white papers. ☐ **NO,** I'm not interested at this time, but please add me to your mailing list.

Name: _____ Title: _____

Company: _____

Address: _____ Address 2: _____

City/Town: _____ State: _____ Zip: _____ Country: _____

Phone: _____ Fax: _____ E-mail: _____

☐ **Yes!** Send me more information via e-mail and sign me up for APC PowerNews e-mail newsletter.

What type of availability solution do you need?

- ☐ UPS: 0-16kVA (Single-phase) ☐ UPS: 10-80kVA (3-phase AC) ☐ UPS: 80+ kVA (3-phase AC) ☐ DC Power
- ☐ Network Enclosures and Racks ☐ Precision Air Conditioning ☐ Monitoring and Management
- ☐ Cables/Wires ☐ Mobile Protection ☐ Surge Protection ☐ UPS Upgrade ☐ Don't Know

Purchase Timeframe? ☐ < 1 Month ☐ 1-3 Moths ☐ 3-12 Months ☐ 1 Yr.Plus ☐ Don't Know

You Are (check 1): ☐ Home/Home Office ☐ Business (<1000 Employees) ☐ Large Corp. (>1000 Employees)
☐ Gov't, Education, Public Org ☐ APC Sellers & Partners

<http://promo.apc.com>

(888) 289-APCC x3596
FAX: (401) 788-2797

Key Code i510x

APC
Legendary Reliability®



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON RI

POSTAGE WILL BE PAID BY ADDRESSEE



KEY CODE: i510x

Department:

132 FAIRGROUNDS ROAD

PO BOX 278

WEST KINGSTON RI 02892-9920

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



How to Contact APC

Call: 1-888-289-APCC

use the extension on the reverse side

Fax: (401) 788-2797

Visit: <http://promo.apc.com>

use the key code on the reverse side



Five new reasons why APC is preferred 3 to 1* for data center protection



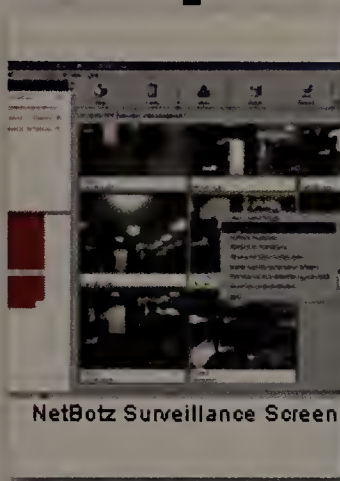
InfraStruXure™ Express

APC's InfraStruXure™ Express is a fully mobile, fully integrated, ready to use data center perfect for disaster recovery, temporary usage, or events support. To learn more about this innovative solution for data centers on the go, visit <http://promo.apc.com> and enter the keycode highlighted in the box below.



Blade Ready Assessment

Don't move to blades without an APC Blade Readiness Assessment. Examining everything from hot spots to airflow, this evaluation will give you added security as you move your data center to blades. For more information, or to see a sample of our work, visit <http://promo.apc.com> and enter the keycode highlighted in the box below.



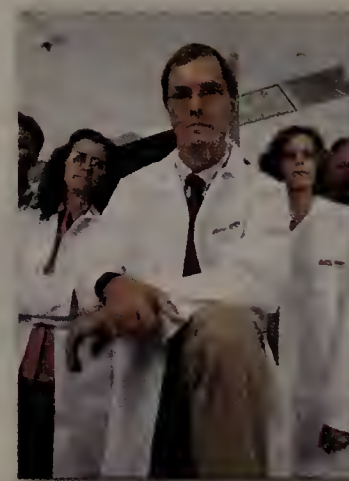
NetBotz®

Wish you knew "who did what when" the last time your servers went down? Newly acquired NetBotz® provides fully manageable environmental monitoring and video surveillance, including emailing your video clips of intrusions or out-of-bounds events! Pre-empt trouble and prevent downtime...take a demo today at <http://promo.apc.com> and enter the keycode highlighted in the box below.



Fuel Cell Technology

Need extra runtime that you can rely on? Constrained by local generator restrictions? Check out our new, Fuel Cell based extended runtime option, fully integrated into the InfraStruXure™ architecture, and featuring the additional runtime you need for peace of mind! See it at <http://promo.apc.com> and enter the keycode highlighted in the box below.



NCPI Science Center

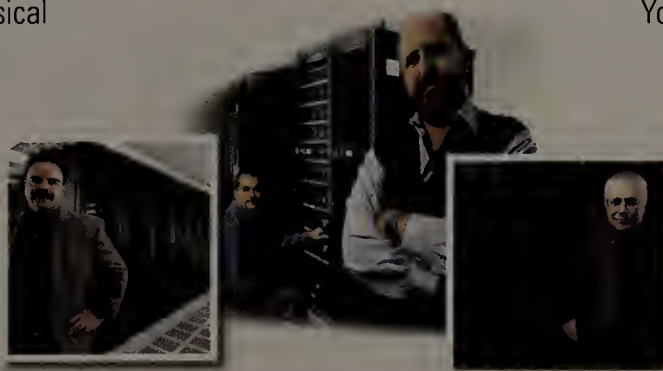
With more than 80 "must-read" white papers published on data center issues and technologies, our NCPI Science Center is actively investigating the problems of today and tomorrow. With lab-testing and field research to back up over 200 years of combined experience, there's no data center issue this tenacious team can't handle. Download samples of their latest work at <http://promo.apc.com> and enter the keycode highlighted in the box below.

If Legendary Reliability® isn't reason enough...

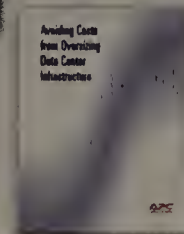
How have we gone from making simple UPS systems to being the world leader in Network Critical Physical Infrastructure (NCPI) solutions? By cultivating a fanatical focus on eliminating downtime wherever, whenever, and however it occurs. Almost 7,000 APC employees and over 30,000 global solution providers have this focus: to deliver the benefits of standardization and to eliminate the waste of legacy designs. This veritable army of availability experts is at your disposal, with the sole mission of helping to increase profits and peace of mind wherever your data is created, transmitted, or stored.

You can count our patents.

You can count the \$100 million we will invest in R&D in the next 12 months, providing solutions for the problems of today and anticipating those of tomorrow. You can count our satisfied customers. Most importantly, you can count on us. After all, that's what Legendary Reliability is all about...



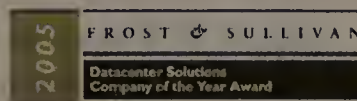
There are hundreds of reasons the Fortune 1000 is saving (and making) millions with our standardized InfraStruXure™ architecture, and at the rate we are innovating there will be hundreds more a year from now. See our latest launches at www.apc.com



Get a FREE White Paper "Avoiding Costs from Oversizing Data Center and Network Room Infrastructure" and a FREE InfraStruXure™ brochure. Visit <http://promo.apc.com> and enter key code i510x or call 1-888-289-APCC x3596 today.



APC is committed to innovative and cost-effective solutions to your power, cooling and management needs. With the industry's newest patent-pending approach to these problems, you can count on APC and our partners to ensure integrity in your blade application.



APC
Legendary Reliability®

JPMorgan

continued from page 46

terms and use a Web interface to create policies, configure agents and monitor performance. The agents can interact via peer-to-peer networking. For example, a new agent installed on a server would instantly register itself with the closest neighbor agent and get updated with the policies configured in the neighboring agent.

When using Enigmatec, Findlan says he can disassociate the IT service, or the multiple services that make up an application, from dedicated hardware. This virtualization allows an application component to tap resources from various components in the infrastructure, he explains. Enigmatec allows the application to request services from any available hardware or software resources, the vendor says.

"Enigmatec brings a bit more intelligence to its automation and virtualization than some competitors," says George Hamilton, director of enterprise computing and networking at The Yankee Group. "Policy-based management and virtualization are part of the bigger goal for overall data center automation, and Enigmatec addresses the problem with a disaster recovery/failure approach."

Provisioning infrastructure components

In Findlan's case, after working with application develop-

ment and operations teams, he input multiple "what-if" scenarios into the Enigmatec software that will prompt it to take action when alerted by a monitoring system. Enigmatec, as well as a provisioning tool Findlan declined to name, is integrated with this monitoring system. The data collected from multiple third-party monitoring tools is aggregated into the centralized system.

Findlan clarifies that this effort was a collaboration of various tools. He says he needed to first break down applications to understand how they used the infrastructure. Then he needed to examine the processes involved to enable software to manage application performance automatically. For example, if the trading application required more server capacity, Findlan wanted to create a virtualized infrastructure that would provision a server to support the application load immediately.

After breaking down and understanding applications, he implemented a provisioning tool that would automatically build infrastructure components when prompted to by Enigmatec, which responds to actions kicked off by preset "if, then" scenarios Findlan defined in the software. Using a central management console, he can watch the process as it runs across application and infrastructure components.

"The monitoring system allows data to be collected and visualized in one place, and it allows us to act upon events happening across the environment from one area," he says.

Findlan worked on this project throughout 2004 and it went live for the credit derivative application in 2005. He continues to work to expand the system to include more business units and their applications. The biggest challenge Findlan encountered was also the most critical — integration of the virtualized components.

"The biggest piece of this is getting all the parts working together in one deployment," he says. "We needed to tie together the underlying interfaces so the Enigmatec software could, for example, tell the provisioning tool to build something out without manual intervention."

Findlan would not share specifics about performance improvements, but says the company "experienced significant improvements in uptime" across several hundred nodes being managed through the CDIR initiative. While Findlan says the project is operational for the credit derivative business unit, and that he is implementing the CDIR solution at various stages in other lines of business, he also admits he has only partially achieved his goals with this project. The system using Enigmatec can automatically allocate resources, but he has yet to enable it to automatically reclaim resources, which would ease follow-up manual processes. This is part of the next phase, he says.

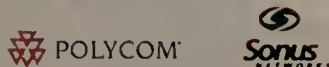
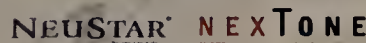
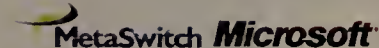
"We have achieved the capacity on demand," Findlan says, "and now we are working to get it automated in real time in both directions." ■

Be part of
the celebration -
10 years of defining
the industry!

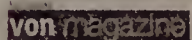
Premier Sponsors



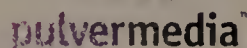
Platinum Sponsors



Premium Media Sponsors



Produced by



VON[®] SPRING 2006

SAN JOSE

CONFERENCE & EXPO

Conference: March 14-17, 2006

Expo: March 15-17, 2006

San Jose, CA

Be part of the future of IP communications. Don't be left behind!
Join the movers and shakers at this year's Spring VON[®].

4 days, 5 tracks, 6 workshops, over 300 exhibitors demonstrating their latest products and services, hundreds of world thought leaders to network with, idea sharing, new businesses created and much more! Miss VON and you miss the future!

Speakers Include:



Jeffrey Citron
Chairman
Vonage



James Enck
Telecom Analyst
Daiwa Securities



John Killian
President
Verizon Business



Dick Notebaert
CEO
Qwest



Jeff Pulver
Founder & Chairman
pulvermedia

Register Now!

Save up to \$200 or receive a Free VON[®] Expo Pass

Register by February 28 using priority code NETW1 at

www.von.com or call 631.961.8958.

maybe it's time you look at **AdaptiveKVM™**

When servers are down or inaccessible, you need fast and reliable out-of-band access and control.

Cyclades AdaptiveKVM™ (patent pending) is the industry's first integrated solution that combines KVM over IP and Microsoft® Remote Desktop Protocol (RDP) technology in a single appliance. By using KVM over IP combined with RDP, AdaptiveKVM provides continuous access for remote server management.

Next-Generation KVM Solution



AlterPath™ KVM/netPlus



Download a **FREE** White Paper on AdaptiveKVM
www.cyclades.com/akvm



www.cyclades.com/nw
1.888.cyclades • sales@cyclades.com

© 2005 Cyclades Corporation. All rights reserved. All other trademarks and product images are property of their respective owners. Price and availability subject to change without notice.

"This little thing KX butt!"

Introducing the next
generation of KVM
The Dominion KX101

Actual Size



All the power of our Dominion® KX packed into a smaller, incredibly versatile form factor.

- Deploy them by the hundreds, even in dispersed locations.
- Manage them all centrally through a single IP address.
- Get to them all without the access limitations of a KVM switch.

Visit us online to learn more about switchless KVM and the future of infrastructure management.

www.KXbutt.com

 **Raritan®**
When you're ready to take control.™

NDC insight

The New Data Center

desktop

Users love to customize their desktops. Your challenge is to work with, not against, them.

BY BETH SCHULTZ



Have you given much thought to what today's increasingly sophisticated users will be like in a decade? Because you are currently building the infrastructure that will support these future workers, don't wait too long before you do.

One of the main differences that will define the next-generation workforce from today's is the level of individualization people will bring to their work. Pundits predict that in 10 years every employee will completely personalize and customize the IT environment for the task at hand. Likewise, the workplace will respond by completely customizing the workers and teams it hires for the project at hand.

Evidence of such individualization is already visible. Try as you might to provide a full range of technology choices, many of today's workers always want more — the ability to customize the desktop has become part of their social DNA. An employee in accounting downloads a

media player because background music helps him better concentrate on his number crunching. A project manager asks team members to use an open source groupware tool he favors for collaboration and calendaring purposes. A workgroup begins using a free instant messaging client, regardless of any policy IT may have set on its use.

In a recent poll, Gartner asked 170 people the extent to which they customize their personal workspaces by adding their own tools, devices, software, music, information resources and the like. Nearly one-half (48%) of respondents reported customizing their work environments aggressively or moderately. Only 10% said they did not customize at all.

Considering consumer behavior, social connectivity and the plethora of personal devices workers have at their disposal, each year such personalization of the desktop will increase and, by 2015, you can safely assume that the average worker will customize 90% of his tools and information resources, says Diane Morello, a research vice president at Gartner. This personalization will go hand in hand with the customization of an individual's work culture — a worker will have choices galore for job mobility,

the ability to affiliate with global communities, the chance to become a "free agent" or to participate in globally distributed work teams, Gartner reports.

From mass customization, we'll see extreme individualization, Morello predicts. A Gartner report, co-authored by Morello, explains: "Future workers will be more independent, take a high degree of control over defining and creating their workplace and work model, operate more globally, become highly active in creating and programming media, take on more responsibility for defining business models, and drive and create change."

The stark reality, she adds, is that 90% of companies today are lagging behind in the thinking and the skills necessary to support this future worker. If you're among that vast majority, and remain so in coming years, you'll forever be climbing uphill, she says. Workers will regularly force IT decisions, not just occasionally as they have in the past. Smart, forward-thinking IT executives (and other business leaders) will take the time today to understand the customization trend and consider the implications for tomorrow's enterprise, Morello adds.

The good news is that if you've begun to build a Web-centric, virtualized, open New Data Center architecture capable of providing a variety of on-demand resources and supporting a vastly extended enterprise, then you're on the right track. And if you're trying to figure out how best to support collaboration, then all the better. Ultimately, far-flung, virtual work teams will be the norm, and by starting today to support intensely collaborative work situations you'll grow your IT expertise as virtual work teams grow in dominance.

Also important is to experiment with how to increase IT's flexibility, while still keeping wraps on management. Rather than standardizing on one set of desktop tools for all employees, for example, offer users the ability to pick and chose from an array of tool options — and make those tools easily downloadable no matter what type of device users have or where they're located. In other words, make yourself the go-to guy (or gal) for users even as they assert their independence and customize their workspaces.

Your long-term goal, Gartner suggests, is to transform yourself from technology provider to trusted advisor. No matter when today's customization results in extreme individualization, that's not a bad idea at all. ■

Ultimately, far-flung, virtual work teams will be the norm. By starting today to support intensely collaborative work situations, you'll grow your IT expertise as virtual teams grow in dominance.

How Do You Distribute Power in Your Data Center Cabinet?

With Sentry!
CDU Product Family: Metered, Smart & Switched



Server Technology
Solutions for the Data Center Equipment Cabinet

The Sentry CDU distributes power for Blade servers or up to 42 dual-power 1U servers in one enclosure. Single or 3-phase input with 110VAC, 208VAC or mixed 110/208VAC single-phase outlet receptacles.

Metered CDU

> Local input Current Monitoring

Smart CDU

> Local Input Current Monitoring

> Supports External Temperature and Humidity Probes

> IP Monitoring of Power Temperatures and Humidity

Switched CDU

> Local input current Monitoring

> Supports External Temperature and Humidity Probes

> IP Monitoring of Power, Temperatures and Humidity

> Remote Power Control of Each Outlet
— On / Off / Reboot

Server Technology, Inc. toll free +1.800.835.1515
1040 Sandhill Drive tel +1.775.284.2000
Reno, NV 89521 fax +1.775.284.2065
USA
www.servertech.com
sales@servertech.com

©Server Technology, Inc. Sentry is a trademark of Server Technology, Inc.

Don't let network power issues give you a headache

Manage your system's power from anywhere, anytime with

smart
START

Nothing gives you a bigger headache than infrastructure hardware and software problems at the wrong time. Often these issues cost you valuable system downtime and require a site visit to reboot hardware. Let SMARTstart remote power distribution systems show you the efficient way to manage your system's power.

- Trusted by major OEM's
- Reboot from anywhere, anytime via web or TCP/IP
- Remote power distribution and circuit protection for AC or -48 VDC or +24 VDC systems
 - Auto reset circuit breaker feature addresses no fault breaker trips for DC systems
- AC PDU features auto power on sequence in the event of power outages. This prevents potential damage as a result of inrush currents when power is suddenly restored.

NEW 2U
smart

To make SMARTstart your headache remedy, visit

www.specpower.com/smart

or call 814-474-2207

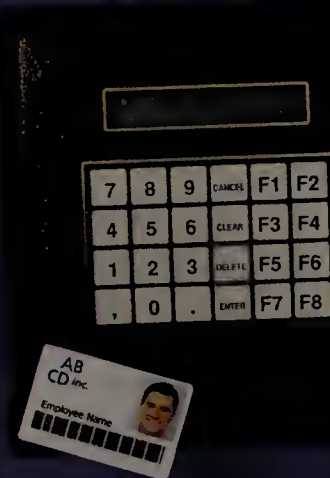
SPECTRUM CONTROL INC.
Power Management Systems Group

Production Tracking Over Ethernet

Eliminate your shop-floor PCs with ...

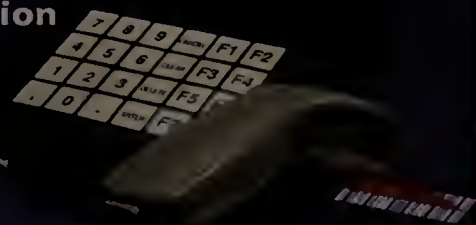
Ethernet Terminals from ComputerWise connected to your in-house LAN.

Capture production data directly into files on your server.



Features & Benefits

- Interactive Telnet Client
- TCP/IP over 10/100BaseT Ethernet
- Built-in Barcode Badge Reader
- Optional Mag-Stripe & RFID Badge Reader
- Auxiliary RS-232 Serial port
- Customizable Data Collection Program Included
- Larger keyboard and display sizes available



COMPUTERWISE.

Call 1-800-255-3739 or visit www.computerwise.com

FEATURE

A dose of telemedicine **saves lives, cuts costs**

Partners Healthcare extends treatment to homebound patients, remote stroke victims.

BY JOEL SHORE

Following her diagnosis of congestive heart failure in 2004, 68-year-old Carolyn Thornton was given a choice: She could wait at her suburban Boston home for twice-weekly medical readings taken by a visiting nurse and recorded in a notebook, or do it herself. Her decision to take her own daily readings and transmit them to cardiac nurses in Boston may have saved her life. When a nurse noticed a precipitous drop in Thornton's blood pressure reading, she called the patient and urged her to seek medical attention.

Telemonitoring prompted Carolyn Thornton to get help when her blood pressure dropped during her recovery from congestive heart failure.



Home-based vital-sign monitoring is just one way the technology known as telemedicine can save lives and improve medical care. Led by Massachusetts General Hospital (MGH), the hospitals of Partners Healthcare are forging ahead with several telemedicine initiatives that bring healthcare closer to patients.

Hundreds of patients are enrolled at home in vital-sign monitoring programs, and a project that monitors patients with hypertension in their homes is due to get under way shortly. Another project that allows homebound patients to have virtual visits to doctors' offices with specialists or consultations for second opinions serves nearly 2,000 patients per year. And a fourth project allows acute stroke patients brought by ambulance to outlying community hospitals to be quickly diagnosed by MGH's stroke specialists.

What is startling about these telemedicine initiatives is their use of modest network technology and rock-bottom cost — just \$100 per month, per patient for the heart-monitoring project, including all home and data-center hardware, communications, application development and ongoing operations for hundreds of patients.

"Simple solutions too often are overlooked," says Doug McClure, corporate manager for technology services at Partners' telemedicine group in Boston. "There is no breakthrough of new technology here, but a leveraging of inexpensive, reliable technology that was proven long ago."

Telemedicine technology

Home-based monitoring begins with a small tabletop console. Plugged into it are various sensors, which may include a blood-pressure cuff, a pulse oximeter for measuring pulse and blood-oxygen saturation levels, and a scale for recording weight. The console's liquid crystal display prompts patients through data gathering, then the patient presses a button that initiates a dial-up session to upload the data through the patient's home telephone line.

"We're talking about patients who often are not PC-savvy and who rarely have a broadband connection in their home," says Dr. Joseph Kvedar, director of telemedicine at Partners Medical Group. "These devices must be user-friendly and not intimidate." Major suppliers in the market include the TeleStation from Philips and HomMed from Honeywell.

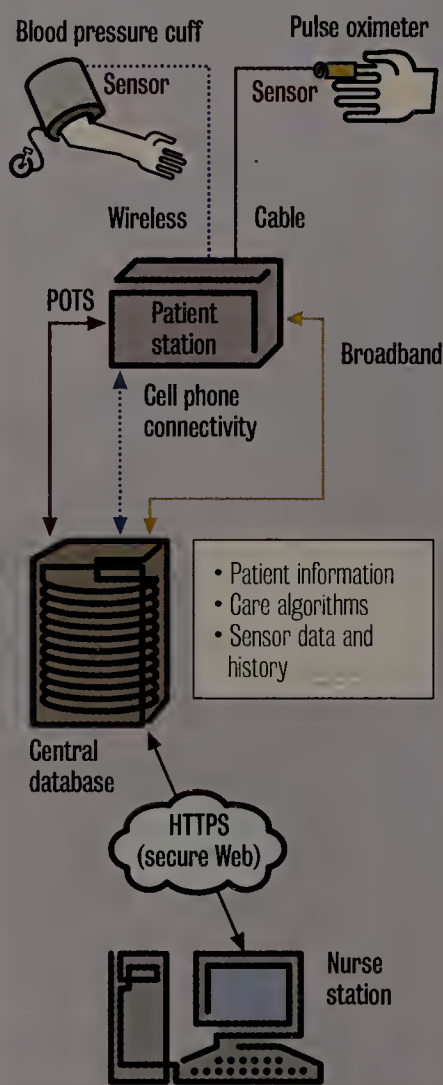
Although the cuff, pulse oximeter and scale are connected to the console via cables, that's changing, McClure says. "The technology is rapidly moving to wireless measurement devices that

communicate with the console via either [radio frequency] or Bluetooth," he says. Similar in concept to a wireless mouse, it's safer for patients, especially those with limited mobility.

Data handling and analysis is straightforward, McClure says. The patient's home device dials an ISP and uses secure HTTP to upload the data to a server inside the Partners firewall. The amount of data transmitted each day is minimal, resulting in a communications session that typically lasts less than 30

Connected care

Partners Healthcare uses simple, inexpensive technology to remotely monitor patients' vital signs. A typical patient station uses a regular phone line, a cell phone or broadband to link to the medical organization.



seconds. Although dedicated servers are used, this was mostly a matter of convenience. "These are not high-volume transaction-processing applications," McClure says. "The investment in hardware was tiny."

Session data is recorded to an Oracle or Microsoft SQL Server database containing the patient's previous readings. McClure has members of his team working with a MySQL database, inves-

tigating the viability of eventually moving to another open source solution.

Server-side clinical algorithms developed by McClure's staff analyze the new information in the context of each patient's continually growing history of daily readings. Grouped into three severity levels, any condition outside the acceptable "green" boundaries set by the patient's physician immediately are conveyed to nurses via a secure HTTP session and displayed on their workstations in yellow or red. With only exceptions reported, they are quickly noticed and can be addressed immediately.

Daily monitoring identifies sudden changes that would likely be missed during a monthly visit to the doctor or twice-weekly readings taken by a visiting nurse. Thornton discovered this firsthand when she received a call from a nurse concerned that her blood pressure had taken a precipitous drop. "I was advised to contact the doctor right away," Thornton says. She did, and appropriate medical steps were taken. Nurses still visit, but now on an as-needed basis rather than a rigid preset schedule.

The simple operation is a result of a design philosophy that placed heavy demands on IT early, while minimizing that department's involvement once the systems were implemented.

"We have tried to build systems that are IT labor-intensive to set up but low-maintenance in terms of operation," says Dr. Lee Schwamm, designer and director of the TeleStroke Center at MGH. "Our standard is that these solutions must be easier than a VCR for [the] patient and the nurses to use; the last thing we want is to haul an IT person out of bed at 2 a.m. to troubleshoot a connection."

Unlike the home-monitoring program, which ultimately will have thousands of units deployed, the TeleStroke program links subscribing community hospitals to MGH, allowing a stroke patient to receive immediate attention by MGH's stroke specialists. The system operates as a hub-and-spoke with MGH at the center surrounded by 13 smaller Massachusetts community hospitals as far away as Martha's Vineyard and Nantucket.

By using videoconferencing technology, stroke specialists at MGH can examine patients at the remote hospitals to help diagnose ailments and recommend a plan of care. "I can examine someone interactively with the help of a physician or a nurse on the other end, and I can make a determination of the stroke severity and the type of stroke by looking at the patient and at the brain image," Schwamm says. "It's almost like being in the room."

Again, the key is simple and reliable, Schwamm says. "We use the off-the-shelf videoconferencing hardware and run the sessions over an ISDN line. It provides the bandwidth we need." As McClure puts it, "We are much more about process innovation than technology innovation."

When it comes to treating a stroke, every minute counts, and the lack of stroke specialists at these small hospitals was the impetus for creating the TeleStroke program. One form of stroke treatment is to administer Tissue Plasminogen Activator (tPA), a clot-busting drug that can greatly reduce the disability resulting from a stroke. But tPA must be administered within three hours of symptom onset.

Conquering challenges

The overall Partners network is very large, with more than 40,000 users dispersed across six major Boston-area hospitals, clinics, joint ventures and research labs, and an affiliation with Harvard Medical School. Even though each telemedicine system is implemented as a silo, isolated from the overall network, the overall Partners infrastructure presented several technical challenges.

McClure's development team divided these challenges into three categories — patient, communications and data. None proved difficult to solve.

Education calmed patients' fears and eased apprehension among nurses. "If a patient puts on the blood-pressure cuff incorrectly or stands on a scale while holding her dog, we get bad readings," McClure says. These two readings are used to calculate fluid-retention levels, the critical factor for patients with congestive heart failure such as Thornton. The goal is so-called "wear and forget" wireless sensors, but the technology isn't quite there.

"Both nurses and patients were reluctant at first," says Kathy Duckett, a registered nurse and director of clinical programs at affiliate Partners Home Care, whose clinicians administer the program. "Instead of a visiting nurse taking a reading just twice a week, the patient now does it every day. They become more involved in the process and know they are being monitored more closely."

Kvedar agrees that acceptance often requires a nudge, more so within the medical community than among patients. Telemedicine is viewed by many in healthcare as "counterintuitive," turning the long-accepted model of the "patient going to where the healthcare is" upside down. Nurses who believed that distance medicine would drive a wedge between patient and care giver now acknowledge that

patients in fact feel more connected. "Patients know their data is being looked at every day."

Communications — simply getting the data out of patients' homes — was the next hurdle. Because most older patients do not have a broadband Internet connection, solutions were designed for the lowest common denominator, a dial-up line in every home.

But as today's Internet-savvy population becomes tomorrow's telemedicine patients, the widespread presence of broadband in homes will allow downloading of interactive, rich educational content.

Perhaps the biggest challenge was the development of algorithms to analyze incoming patient data and understand its meaning in the context of the patient's history of previous readings. Many months were spent developing and testing these algorithms.

In deploying the TeleStroke videoconferencing solution at other hospitals, Schwamm found that hospitals with larger IT infrastructures that have not implemented videoconferencing must spend more time and manpower to configure firewalls and allay security concerns.

"Larger institutions are the hub in this model, not the outlying spoke, so issues of scalability compound for the hub hospital as more smaller hospitals sign up and become additional spokes in the wheel."

Conversely, hospitals with a modest IT infrastructure will find implementation straightforward. "All it takes is a small server, an ISDN line and a videoconferencing unit."

The beauty of home-based telemonitoring and the associated server-side applications is its low cost. A yearlong project following 500 patients costs \$600,000, pocket change by medical-industry standards.

Calculating a return is not what these projects are about. The rate of hospitalizations for patients 65 and older with congestive heart failure skyrocketed from about 60 per 10,000 in 1970 to nearly 230 per 10,000 in 2000, according to the National Heart, Lung and Blood Institute.

"Successful implementation of telemedicine translates to fewer hospitalizations, less stress on the healthcare-delivery system, better utilization of healthcare professionals and improved quality of life for patients," Duckett says.

Currently, half of all patients with congestive heart failure die within five years of being diagnosed, Duckett says. Telemedicine is changing that. "Daily monitoring allows us to react quickly, administer treatment or adjust medication, and cut down on hospitalizations and doctor visits. We are saving lives and reducing healthcare costs at the same time."

Now stabilized and sensitized to the diet and environmental factors that

affect her health, Thornton no longer needs her telemonitoring console and is free to travel. "Telemonitoring made me feel like a trailblazer," she says. "I was lucky to be invited into this program; today I feel much stronger."

Upcoming initiatives

With development on the home health monitoring and TeleStroke projects largely complete, Partners is tackling new initiatives.

Nearing its launch is the Partners Healthcare hypertension-monitoring project, an outgrowth of its heart-monitoring effort. In its initial phase, it will keep track of several hundred patients with chronic high blood pressure. Because they are not homebound, and the only sensor required is one to measure blood pressure, mobility is a bigger factor.

"These patients are not homebound, so use of their cell phones as a data aggregation and transmission device is an obvious use factor," McClure says.

The metric for success will be the degree to which Partners can help people manage their blood pressure more effectively, with an ultimate goal of avoiding downstream effects, such as stroke, heart attack and congestive heart failure. Hypertension is not an acute condition, but it is one that is significantly more pervasive throughout the general population.

Also on the docket are a patient-management system and a fully electronic patient medical record. These are under development as Web services based on protocols promulgated by Health Level Seven (HL7), an ANSI-accredited Standards Developing Organization (SDO) that operates in the healthcare arena — much as the IEEE sets network standards. While other SDOs define protocols for such healthcare domains as pharmacy, medical devices, imaging or insurance-claims processing, HL7's domain is clinical and administrative data.

The Partners road map calls for a fully electronic patient record that will incorporate hospital test results, radiological images and telemonitoring data. Once implemented, Web-based visits to doctors' offices, whether in Boston or elsewhere, can become more efficient, eliminating the administrative expense and delay associated with retrieving a paper-based patient medical history.

"The electronic medical record is our Holy Grail," McClure says.

Shore is a technology journalist in Southborough, Mass., who provides product-strategy consultation and editorial-development services to technology companies. He can be reached at www.joelshore.com.

Intel explores telemedicine

Intel is on the telemedicine bandwagon and is using its considerable clout to urge government leaders to tap the burgeoning technology to help solve the economic and social challenges brought on by skyrocketing healthcare costs and a rapidly growing population of aging citizens.

Speaking in December at the White House Conference on Aging, held once a decade, Intel Chairman Craig Barrett said, "We can make the healthcare system more cost-efficient while simultaneously improving the quality of care and life for our nation's aging population."

He's got that right. But it's a race against time.

With nearly 35 million senior citizens today, the United States spends 16% of its Gross Domestic Product on healthcare, a figure likely to hit 25% as the number of senior citizens doubles during the next 20 to 30 years.

Put more narrowly, the U.S. population of those aged 85 and older is exploding from 3 million in 1990 to a projected 5.7 million in 2010 and 17.7 million in 2050, according to U.S. Census Bureau. There simply aren't enough physicians and nurses to go around.

In a direct boost to telemedicine technology, Barrett says a broad range of personal health technologies designed to go into the home will help an aging population maintain its independence while deferring costly institutional care.

Intel is researching innovations in sensors, software and wireless technologies that allow vital information about heart rate, respiratory rate, blood pressure and sleep patterns to be tracked remotely.

The company is leveraging its expertise in broadband Internet connectivity to allow data to be shared in real time between seniors and healthcare professionals, as well as among family members who deliver the majority of care to seniors.



Dr. Lee Schwamm evaluates a patient at a remote hospital who is having a stroke to decide whether or not a clot-busting medication called tPA should be administered.

CLEAR CHOICE TEST

VoIP over SSL VPN

Test shows VoIP call quality can improve with SSL VPN links

BY JOEL SNYDER, NETWORK WORLD LAB ALLIANCE

VoIP is often written off as an application that will not work well over an SSL VPN link. To test that argument, we examined 10 SSL VPN products in four network scenarios to see how well VoIP calls were handled by the products' network extension clients.

The news is generally good. In high-bandwidth, low-latency environments, there is virtually no difference in quality between an unencrypted VoIP call and the same call made over an SSL VPN (see chart). Even better news is our discovery that a VoIP call made over SSL VPN on a typical broadband Internet connection is of higher quality than an unencrypted call. The only bad news comes with truly awful network connections: ones with high loss and limited bandwidth. In this environment, neither unencrypted VoIP calls nor SSL VPN-protected calls will be considered acceptable (for example, below a mean opinion score [MOS] of 3).

With the exception of Fortinet's Fortigate appliance, the vendors included in this test are the same as those that were tested with our blow-out SSL VPN test conducted last December (www.nww.com, DocFinder: 2222). AEP Networks' Netilla Security Platform, Array Networks, SPX-5000, Aventail's Smart SSL VPN, Caymas Systems' Caymas 525, Check Point's Connectra,

Pushing VoIP over your SSL VPN will help serve up call quality to remote sites

While our results show some differences between the 10 products tested, that was not the point of this test. Small variations in the MOS score registered by each product are not significant. What is important to recognize in this test is that the results show that SSL VPN and VoIP work together very well over broadband networks, even in the face of some network loss and congestion. In this graph, the solid vertical lines represent the reference performance results for each network type without any SSL VPN product in place while data points show how each vendor's SSL VPN performed on the four networks. Data points to the right of the reference lines represent an improvement; to the left, a degradation.

Our unimpaired and good networks tested out at 4.2 and 3.3 respectively, very acceptable levels of quality. The bad and bad/slow networks had MOS scores of 2.41 and 2.26, which would be considered unacceptable in a business environment.

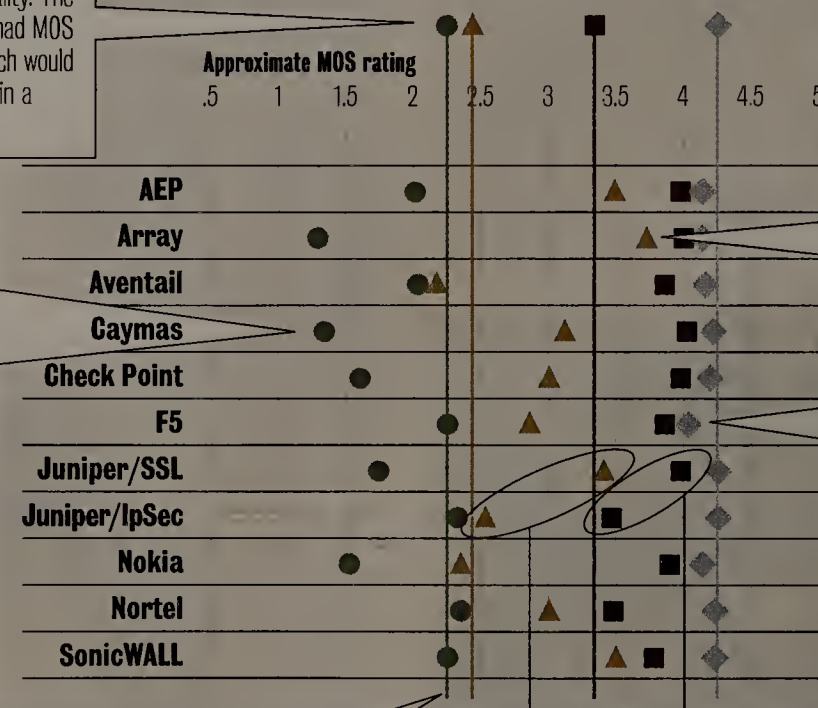
With an unusable network, nothing can be done to make a bad situation better. F5's, Nortel's, SonicWALL's and Juniper's ESP-based transport held the line, but everyone else gave very poor call quality in this scenario.

When a poor-quality broadband network was used, Aventail and Nokia failed to improve the quality of the call when compared with our unprotected reference. F5's and Juniper's ESP-based transport improved the call, but not enough to make it acceptable. All the other SSL VPN vendors took an unacceptable call and made it acceptable.

Juniper's IPSec ESP-based transport didn't improve call quality the way that its TCP-based transport does for good and bad network quality. Instead, the ESP-based transport behaved in the same way as an unencrypted network.

Because broadband connections are so much faster than VoIP requirements, SSL VPNs can deliver better-quality voice calls than pure VoIP. Here, Array managed to improve a call that would otherwise have been considered unacceptable by increasing the MOS score from 2.41 to 3.69.

On an unimpaired network, all devices but F5's gave us scores within 2% of the reference unencrypted network. F5's 4.02 was definitely lower than the other SSL VPNs, but still would be considered a very good-quality call.



● In our tests, the **bad/slow** network operated at 0.1Mbps with 60-millisecond latency, 20-millisecond jitter, 2% loss, 1% out of order packets, 1% duplicate packets, and congestion every 20 seconds of 30% packet loss and 1,000-millisecond latency.

▲ Our **bad** network operated at 0.5Mbps with 60-millisecond latency, 20-millisecond jitter, 2% loss, 1% out-of-order packets, 1% duplicate packets and congestion every 20 seconds of 30% packet loss and 1,000-millisecond latency.

■ Our **good** network operated at 0.5Mbps with 45-millisecond latency, 10-millisecond jitter, 0.25% loss, 1% out-of-order packets, 1% duplicate packets and no congestion.

◆ Our **unimpaired** network operated at 100Mbps with no latency, loss, faults or congestion.

F5's FirePass 4100, Juniper Networks' Secure Access 6000, Nokia's Secure Access System 500, Nortel's VPN Gateway 3070 and SonicWall's SSL-VPN 2000.

While our results do show some differences between products, small variations in the MOS should not be considered significant. More importantly, our testing demonstrates that SSL VPN and VoIP work together very well over broadband networks, even in the face of some network loss and congestion. We also found that datagram-based SSL VPN techniques such as those used by Nortel and Juniper (both optionally) do not appear to offer any real advantage for VoIP traffic and may give poorer results than TCP-based SSL VPN from the same vendors.

To test VoIP over SSL VPN, we used a product from GL Communications that measured the quality of voice calls using standardized testing procedures. To see how VoIP would behave in the real world of broadband ISPs, we used a Shunra Virtual Enterprise to inject latency,

loss and other impairments, based on our measurements of broadband IP service at wireless hot spots, hotels and other temporary locations around the world. (see "How we did it," DocFinder: 2223). We used common "soft phone" Session Initiation Protocol software on the SSL VPN client side, with a SIP "hard phone" inside the SSL VPN server.

We examined four scenarios, ranging from a perfect 100Mbps network with a few milliseconds of latency, all the way to a poor quality 100Kbps network with 60 milliseconds of latency and other impairments. We called these four scenarios "unimpaired," "good," "bad" and "bad/slow."

Our first tests set a reference to see how the SIP software and hardware would work without a VPN in the way. The GL Communications Voice Quality Tester gave us MOS ratings for our calls, with higher scores being better qual-

ity. Most people would consider a call with a score as low as 3.0 to be acceptable, although obviously degraded (see "Minding your Ps and Qs"). These no-VPN networks set the standard for SSL VPNs to meet: acceptable quality over unimpaired and good networks, with poor calls over the bad and bad/slow networks.

Our next set of tests measured how each SSL VPN device behaved carrying VoIP calls over an unimpaired network. The results were good. In general, the SSL VPN devices caused very little degradation in the quality of the VoIP calls. With a perfect MOS being 4.24, as set by our base test, the worst score we saw (with F5 being the exception) was 4.16. And, as we noted above, the difference between that and the perfect score is not likely to be noticeable. Even the low score registered by the F5 FirePass device, at 4.02, would still be considered a very good call. Granted, testing over an unimpaired network with zero latency doesn't tell you much about how these devices would work in the real world.

Performance tests run across the good network yielded counterintuitive results. We had predicted that the quality of a call over an SSL VPN could not be better than over a clean wire, just because of the additional interactions between TCP and SSL on the protocol level that SSL VPNs

put under the User Datagram Protocol (UDP)-based VoIP traffic. We were astonished with the results from the first test runs on the good network; it showed that many SSL VPNs improved the quality of VoIP calls — we retested everything, twice just to confirm the results. The improvement in call quality from our baseline of 3.31 ranged from less than 5% to as much as 20%. Only with extremely detailed analysis of the packets crossing the good network did we discover what was happening: TCP was improving the quality of calls by reordering and retransmitting packets.

In every case, adding an SSL VPN to a VoIP call over a good broadband network improved call quality. So in effect, wrapping a VoIP call in SSL gives it more structure, kind of like the rind of good Brie. What we had not counted on was the huge difference between what VoIP requires (64Kbps) and a typical broadband connection of 500Kbps or more. Because the broadband connection was so fast, TCP was able to repair the impairments without reducing voice quality.

One twist of SSL VPNs is that not every vendor uses SSL over TCP in its network extension client implementation. Nortel's client encrypts TCP traffic over TCP, but encrypts UDP traffic over UDP. If the UDP doesn't get through, the

client falls back to pure encrypted TCP. Juniper's client uses the Encapsulating Security Protocol (ESP) transport of IPsec, a datagram service similar to UDP, for TCP and UDP traffic. This is optional, with the client able to try ESP first and if that doesn't get through, fall back to standard SSL over TCP.

We tested Juniper with TCP and ESP because these are under the control of network managers. Our initial predictions were that VoIP over TCP would behave poorly compared with VoIP over datagram services such as UDP and ESP because TCP's retransmissions would interfere with voice quality. Our tests showed that for a good network, Nortel's and Juniper's datagram services gave 15% lower call quality than corresponding TCP-based services. The call quality was roughly the same as for an unencrypted network, a result that made sense.

The best news of all our testing came when we set up the bad network, representing the lower end of quality of the broadband services. In this test, TCP and a high-speed network again came to the rescue. All but three of our SSL VPN vendors also improved the unacceptable call but took call quality up enough for the call to be considered acceptable. In these tests, we saw as much as a 45% to 50% improvement in call quality. For network managers looking to deploy VoIP over SSL VPN for traveling users, this means calls from all but the worst broadband networks will have very acceptable voice quality.

Our last test, run over a bad, slow network, showed that when the network is horrible, nothing helps. In some cases, such as with F5's, Nortel's, SonicWall's and Juniper's ESP-based transport, the call quality over these degraded links was about as bad as the reference. In all other cases, though, the interaction between a bad, slow network and VoIP gave awful results.

Network managers who wish to use SSL VPN with VoIP services can roll them out in most network scenarios knowing that SSL VPN can clean up an average network connection. For home users who have good-quality broadband, and for most travelers, any of the SSL VPN devices would give a good experience. Because this test focused only on one aspect of SSL VPN remote access, VoIP call quality, our results may not help to significantly differentiate products. Instead, our testing shows that VoIP and SSL VPN can coexist very happily.

Snyder is a senior partner at Opus One, a consulting firm, in Tucson, Ariz. He can be reached at Joel.Snyder@opus1.com.

Mind your Ps and Qs

By Joel Snyder, Network World Lab Alliance

Voice-quality testing is a traditionally obscure and dark corner of telephony that has recently become more interesting with the rise in VoIP and mobile communications. The standards for VoIP testing come out of the International Telecommunications Union (ITU), formerly known as the International Consultative Committee on Telegraphy and Telephony.

The original ITU standard, P.800, (more formally known as Recommendation P.800) for voice-quality testing is decidedly non-technological. The test requires a panel of judges to listen to voice calls and then score them based on a particular set of criteria. The scores are aggregated into a single number, called the Mean Opinion Score (MOS), typically shown in a range of 1 (worst) to 5 (best).

Running MOS tests is expensive and time consuming. To test the four scenarios across our SSL VPN field of 10 contenders would have been, to put it politely, "not in the budget." Fortunately, the ITU understands the need for a more efficient and repeatable way of testing voice quality and has created alternative tests that can be automated.

Perceptual Evaluation of Speech Quality (PESQ) represents a complex, but objective, test that is supposed to be analogous to MOS. Through a well-defined series of phases, including level and time alignment, input filtering, perceptual modeling, equalization and disturbance processing, a score, called the PESQ-LQO (Listening Quality, Objective) pops out that maps directly to the MOS score.

The ITU tried several times to get the PESQ score to match what a MOS test turns up. In our testing, we report the PESQ-LQO score from ITU Recommendation P.862.1 because it maps most closely to the most

frequently used MOS. There are several other PESQ scores seen, defined in Recommendation P.862. All three scores measure the same thing, although their scale and linearity vary. This means that comparing results across different tests is not possible if different versions of the test were used.

Understanding exactly what a MOS represents is another matter. Although the obvious "higher is better" applies, trying to figure out when a voice call goes from acceptable to unacceptable is another matter. A normal analog or digital telephone call will generally have a MOS of 4.2 to 4.4. A typical cell phone call will range from 3.0 to 3.7, while a poor cell phone call would be scored less than 2.

Another voice quality scoring system described by the ITU is the Perceptual Analysis Measurement System (PAMS), in P.800. PAMS is a "listening opinion" test, which is different from PESQ, a "conversation opinion" test. PAMS attempts to measure listening quality (using the same scale as PESQ) and listening effort. PAMS looks for errors introduced into the voice channel and predicts how they will affect listening quality and listening effort.

A third metric you'll often see is the ITU's Perceptual Speech Quality Measure (PSQM) from P.861. PSQM is recommended for use in assessing speech codecs, and not the behavior of an entire voice connection. The PSQM is often reported as well, and we have scaled it to match MOS. The native scores for PSQM range from 0 (excellent) to 6.5 (poor), so we have rescaled PSQM to match the range of PESQ.

In our testing, we generated all of these scores, and they can be found in a spreadsheet (see DocFinder: 2240). All of the analysis in the accompanying story is based on the PESQ-LQO scores.

Lab Alliance

■ Snyder is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.networkworld.com/alliance.

Other members: Mandy Address, ArcSec; John Bass, Centennial Networking; Travis Berkley, University of Kansas; Jeffrey Fritz, University of California, San Francisco; James Gaskin, Gaskin Computing Services; Thomas Henderson, ExtremeLabs; Mercom, network consultancy and product test center; Christine Perey, Perey Research & Consulting; Barry Nance, independent consultant; Thomas Powell, PINT; Joel Snyder, Opus One; Rodney Thayer, Canola & Jones.

E-MAIL NEWSLETTER SHOWCASE: MESSAGING

University gets help managing Exchange

BY MICHAEL OSTERMAN

The Washington State University Puyallup Research and Extension Center, located about an hour south of Seattle, is focused on

agricultural research and related areas. This operation of Washington State runs Microsoft Exchange and was experiencing some problems with users losing

e-mail and, in some cases, losing entire mailboxes.

Restoring e-mail and mailboxes was a very disruptive and time-consuming task for the IT

department, because to do so the Exchange Server needed to come offline, backup tapes had to be loaded and the missing information retrieved through a

very inconvenient and laborious process.

In mid-2005, this branch of Washington State evaluated Mimosa Systems' NearPoint, an e-mail management system designed to help organizations better manage their Exchange environment. NearPoint provides a number of capabilities, including policy-based archival of e-mail, end-user access to recovery tools so individuals can restore missing or deleted e-mail, disaster recovery and other functions.

Although NearPoint has been operating for less than two months at this operation of Washington State, a senior manager is pleased so far. The archive has permitted a reduction in the size of the overall Exchange database. Further, the IT manager has created some general groups among her users based on the length of time they need to preserve e-mail, allowing users to define how long they want e-mail to be retained. Plus, users can go back as far as they want in the archive to recover old e-mail. Before, if the e-mail they wanted to recover was older than 30 days, they were pretty much out of luck.

What tools such as NearPoint illustrate is the critical need for archiving and related capabilities in most organizations. While much of the focus on archiving has been on regulatory compliance to satisfy demands of the Securities and Exchange Commission, for example, the real 'meat-and-potatoes' of archiving focuses on the less sexy, but more frequent, requirement to recover individual users' missing e-mails and to simply manage Exchange more efficiently. This is where archiving can really shine in most organizations.

Osterman is president of Osterman Research. He can be reached at michael@ostermanresearch.com

How many tools do you use to Certify, Identify, Configure & Document your Ethernet network?

(That's too many!)

Introducing Validator-NT™

The All-in-One Network Management Tool

CERTIFY individual Ethernet cable runs up to 1 Gigabit Speed per IEEE802.3 specifications.

Test for TIA568 Interconnect problems. Determine fault locations, cable length and delay or noise conditions. Produce and print cable test schedules and cable test results. Qualify lines for VoIP usage.

IDENTIFY active components of your network on the other end of the cable. Identify all types of equipment and port service discovery with advertised speed ratings and DHCP negotiation. Access IP addresses, ping equipment and flash hubs/switches for positive port location.

CONFIGURE links between nodes at Gigabit speed.

Check IP addresses on netmask, Gateway/routers and domain name servers. Confirm links between equipment for changes or upgrades.

DOCUMENT the network with the included powerful

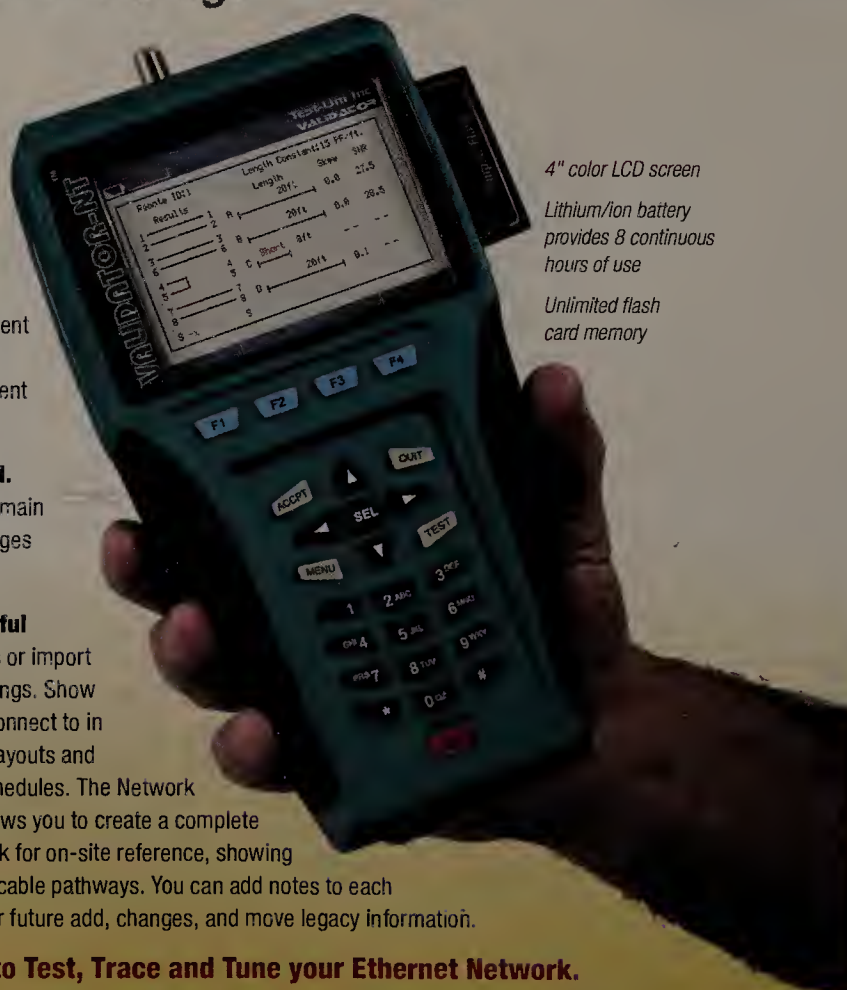
Plan-Um™ software. Create layouts of offices/premises or import



Powerful Plan-Um™ software included

existing Visio/AutoCAD drawings. Show cables and equipment they connect to in physical locations. Print out layouts and corresponding Cable Test Schedules. The Network Tool section of Plan-Um™ allows you to create a complete topology layout of the network for on-site reference, showing connections, equipment and cable pathways. You can add notes to each component of the network for future add, changes, and move legacy information.

Everything you need to Test, Trace and Tune your Ethernet Network.



4" color LCD screen

Lithium/ion battery provides 8 continuous hours of use

Unlimited flash card memory



NT955
MSRP only
\$1495.00

Test-Um Inc.
The Intelligent Test Solutions Company

805-383-1500 • FAX 805-383-1595 • www.test-um.com



nww.com

In your in-box

Sign up for this or any of *Network World's* many other e-mail newsletters.

DocFinder: 1002

MANAGEMENT STRATEGIES

■ CAREER DEVELOPMENT ■ PROJECT MANAGEMENT ■ BUSINESS JUSTIFICATION

Insurer conquers change management

An IT manager's account of the obstacles to rolling out an automated process.

BY ANDREW ABRAMCZYK

Implementing any type of formal process is never easy, but modifying an existing process that works is even harder.

That's what we found to be the case at Erie Insurance as we automated our IT change-management process. Change management refers to the addition, modification or removal of any component of an IT environment, not just hardware and systems and application software. A firmware upgrade to a switch and patch installation on a server are a few examples.

Six years ago, we had a mostly manual change-management process. In the years since, we've made incremental changes that resulted in our present automated system. We moved slowly and precisely, with the idea that we could modify our plan as we went. An early change to the process was our move to an e-mail-based system that provided some workflow elements.

Then we began to align the process with the best practices defined in the IT Infrastructure Library (ITIL) framework. Later, we used SupportMagic (now called Magic Service Desk), the change-management module in BMC Software's IT service-management tool. At first we used it in parallel with our e-mail-based system, but eventually we migrated our entire process to it. Erie Insurance's roughly 500 IT employees are all trained to use SupportMagic, but it's most often used within the operations and application-development groups.

There were some bumps along the way that caused us to stop and rethink an approach, a step in the workflow, or even how a screen looked and how the business rules should work. What follows are some of the biggest challenges we faced and how we worked around them to achieve our objectives.

Workers thought they always were being watched.

This was not necessarily true. We put a formal ITIL wrap on the change-management process to ensure consistency and compli-

ance. We had to hold management accountable for how their staff used the change process and for how well changes were performed.

We had to build our process into the ITSM tool in such a way that we could easily see how it was being followed: Were we consistent? Were we improving? We needed to be able to pull the core data components of the request for change (RFC) easily, correlate that data to key performance metrics and ask: Are we improving on these metrics?

Now we easily can run reports based on key performance metrics and provide good, reliable feedback to staff, plus identify gaps in the process that need to be filled. We can also more easily set targets against which everyone can be measured. Some of these metrics are the number of late approvals, complete and unsuccessful changes, incomplete and unsuccessful changes, changes that were not completed within the change window, and changes that caused a service impact.

Staff was sensitive to the results of a change or its impact on service.

This was a big factor that we had to overcome collectively. One of the challenges we faced was that originally, the people performing changes had to look objectively at what they did vs. what was documented, and then evaluate whether their changes were successful or unsuccessful, complete or incomplete. Staff had a hard time doing this, so we automated the classification process.

Instead, we built several business rules into the tool that would look at the post-assessment data entered by the worker performing a change and automatically flag it as complete, incomplete or withdrawn. Then we ran a management report against that assessment to determine whether the change should be further considered successful or unsuccessful.

Automating this process eliminated much of the emotion involved. And by management not overreacting to the results of a particular change but instead analyzing the metrics to see how well the entire change process is being used over time, we can identify areas that need attention and employees who are struggling with managing their changes.

Would we control automation or would it control us?

We didn't fully automate our process until we experimented with different workflow approaches and RFC-logging abilities. Going through this process allowed us to determine how we needed a tool to work and to develop business rules that met our needs. It also enabled us to restrict who can modify a change, who can approve at specific points in the workflow and who is responsible for assessing the change. We came out with a solid process that works better because we shaped the automation process, as opposed to having an automated system dictate how our process works.

We needed an audit trail, a better way to track changes.

We also had to overcome the problem of using an inadequate tool — our e-mail workflow — to manage our changes. The e-mail system lacked an audit trail, so it could not track changes as they went through the approval and assessment process.

We focused on how to track changes properly and audit what was done to them, which helps tremendously with both Sarbanes-Oxley audits and individual performance assessments. Now we can see where a change is in the workflow, when it was made, whether or not an approval was made and when, and whether or not any fields in the original RFC were improperly modified and by whom. This in turn allowed us to determine key areas for improvement. For example, we can target managers who repeatedly approve their changes late.

Entering multiple changes with different start dates.

What was the one thing we could build into the tool that would be a sell-



Andrew Abramczyk tells how his company made the tough transition to automation.

ing point for anyone using it? When we were determining this, the concept of multiple changes with different start dates came to mind.

In rollouts there are often places where a change has to be repeated on different devices or code, such as for patch management, virus updates or firewall changes. In our manual system, changes would need to be re-entered and resubmitted each time they repeated. We decided to build a feature into the tool that would let change initiators save their change as templates. This allows them to call up a change at a later date, make minor modifications and resubmit it, obviating the need to re-enter RFCs. This feature was a huge selling point and a big timesaver for workers making changes.

These are just a few of the obstacles we overcame while incorporating our change-management process into our ITSM tool. While we would consider the effort successful, we also understand that everything is open for debate and can be improved. We continually strive to ensure we are heading in the right direction, and we always look for ways to make things more efficient and effective.

Abramczyk is manager of IT Information Services within the Operations and Support department of Erie Insurance Group. He can be reached at Andrew.Abramczyk@erieinsurance.com.

What's on your Network?

Find out with NetSupport...

Centrally Discover, Support and Manage your Systems. Anywhere.

Do you know where your oldest computer is? Need to locate and upgrade your Windows 98 systems? Are you overpaying on unused software licenses? Which employees are spending the most time surfing the web? Find out fast with NetSupport DNA.

Managing your company's IT assets means more than just selection and maintenance. Reporting, inventory, deployment and forecasting are also part of the job. NetSupport DNA is an easy to use IT asset management solution that provides you with the tools you need to get to know your network.

Unlike other solutions, NetSupport DNA does not require certified training or have a complex implementation path. It offers all of the functionality you'd expect from an award winning asset management suite, but with only a 30 minute implementation path.

NetSupport DNA combines powerful hardware and software inventory with software distribution, application and internet metering, pc remote control, enterprise reporting and a web-based help desk solution.



NETSUPPORT
DNA^{v2}
NetSupport

Visit www.netsupport-inc.com and download a full trial license today. And in 30 minutes start viewing your vital Asset Information.

Sales: 1-888-665-0808
www.netsupport-inc.com

SERVICES WITHIN YOUR REACH FROM ANYWHERE

LOCAL OR REMOTE SERVER MANAGEMENT SOLUTIONS

UltraMatrix™ Remote

KVM OVER IP



■ MATRIX KVM SWITCH WITH INTEGRATED REMOTE ACCESS OVER IP

- System-wide connectivity over IP worldwide and locally
- Connects 1,000 computers to up to 256 user stations
- Supports PC, Sun, Apple, USB, UNIX, serial devices
- High quality video up to 1280 x 1024
- Secure encrypted operation
- View real-time video from 4 computer connections with quad-screen mode

The UltraMatrix Remote represents the next generation in KVM switches with IP access. It provides a comprehensive solution for remote server access over IP and local as well.

■ KVM RACK DRAWERS WITH KVM SWITCH OPTION

RackViews offer the latest, most efficient way to organize and streamline your server rooms and multiple computers.

The RackView is a rack mountable KVM console neatly fitted in a compact pull-out drawer. This easy-glide KVM drawer contains a high-resolution TFT/LCD monitor, a tactile keyboard, and a high-resolution touchpad or optical mouse.

UltraMatrix™ E-series

KVM SWITCH



■ PROFESSIONAL MULTI-USER KVM SWITCH 2 - 4 KVM STATIONS TO 1,000s OF COMPUTERS

- PC or multi-platform (PC/Unix, Sun, Apple, others)
- On-screen menu informs you of connection status between units in an expanded system
- Powerful, expandable, low cost
- No need to power down most servers to install
- Security features prevent unauthorized access
- Free lifetime upgrade of firmware
- Video resolution up to 1600 x 1280
- Available in several models
- Easy to expand

The UltraMatrix E-Series represents the latest in KVM matrix switch technology, at an affordable price. The E-Series allows you to connect up to 256 user stations to as many as 1,000 computers. The UltraMatrix E-Series is available in several sizes: 2x4, 2x8, 2x16, 4x4, 4x8, 4x16, 1x8, and 1x16 in either PC or multi- platform.



XtendVue
Vertical Rack mountable LCD
With Built-In KVM Extender



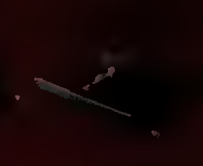
RackView
Fold-Forward



RackView
Fold-Back



RackView
LCD Monitor



RackView
Keyboard

ROSE US 281 933 7673
ROSE EUROPE +44 (0) 1264 850574
ROSE ASIA +65 6324 2322
ROSE AUSTRALIA +617 3388 1540

800-333-9343
WWW.ROSE.COM

ROSE
ELECTRONICS

Golden State Foods exceeds goals with OmniCenter

Michael Bourque, Technical Services Manager of Golden State Foods, speaks about his experience with Netreo's OmniCenter™ network management appliance.



Golden State Foods (GSF) has processed and distributed replenishable supplies to McDonald's Corporation

since it opened its first restaurants in the 1950s. GSF's worldwide operations include locations across the United States, Egypt, Australia, and Malaysia.

Q: What made you decide to look at changing network management platforms?

A: Our network was growing at a very rapid pace and it was hard to keep up. So instead of hiring more admins, we needed something to help us fight the battle of keeping up with all of our locations and diverse systems.

Q: What criteria did you use to evaluate them?

A: Our criteria for selection was first, does it interact with all our diverse systems. Second, can this all be done from one central location without impacting the Wide Area Network? We also considered complexity. We didn't want something you needed to go to a week of classes and still couldn't understand how it works or how to make any changes. And finally there was cost, OmniCenter gives you more bang for the buck than anything else I have seen.

Q: What is the main benefit to your company that OmniCenter provides?

A: OmniCenter keeps us alerted and aware of what is going on so we can be more proactive and not reactive. It gives us an overall view of the performance and availability of all our network assets, which allows us to

detect, diagnose, and fix a problem before any users were aware something was wrong. With this information we can investigate problems, determine capacity, and plan for the future or justify technology decisions.

Q: How long did it take to see payback from the investment in OmniCenter?

A: The payback was almost immediate. Right after installing it, we were alerted that one of our iSeries servers was running out of disk space and we were able to catch it before it crashed. The financial impact would have been tremendous. It would have taken a team of about ten highly paid

system admins and programmers a week to a week and half to get all the data back in order.

OmniCenter has made dramatic differences in the lives of all of our IT and Help Desk personnel. By relieving them of routine "babysitting" chores, OmniCenter allowed us to reach about 125 percent of our business goals for last year.

Q: Many network management platforms require a huge project to implement and take months or years to complete. What was the OmniCenter implementation like?

A: It was like "flipping on a switch." Once the Omnicenter was in and the initial configuration was setup we were monitoring our systems. In just one day, we were able install OmniCenter and configure it to poll fifteen different sites and hundreds of different devices, including our IP video conferencing system. Overall it was a very simple and stress-free implementation.

.....
Michael Bourque has been with Golden State Foods for 9 years. He carries the MCSE, CCNA, CNE, IBM Certified Professional and Lotus Notes certifications. His responsibilities include all aspects of GSF's network infrastructure, including network security, email and web systems, and AS400.



Network management has always been complex, time-consuming, and expensive.

Until now.

Netreo's OmniCenter™ family of network management appliances have helped hundreds of America's leading corporations and universities dramatically reduce IT management costs and improve availability. Our agentless and clientless architecture makes the process of managing even the largest and most complex environments remarkably simple, and makes implementation a breeze.

Come see our in-depth case studies at <http://www.netreo.net/nw/> and discover how we can help simplify your IT management.

OMNICENTER™
IT Management Redefined.

Netreo
www.netreo.net/nw/
(866)NETREO1



Fault Management • Performance Reporting • Security Managment • VoIP Management • Intrusion Detection • Protocol Reporting

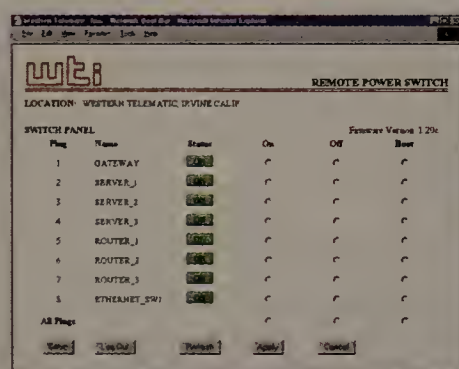
Network Power Switches

Control Power on Any AC Powered Device ... Via Web Browser, Telnet, Modem or Local Terminal

Servers, routers, and other electronic equipment occasionally "lock-up", often requiring a service call to a remote site just to flip the power switch to perform a simple reboot. With WTI's Remote Power Switches, you can perform reboot and On/Off control from anywhere!

- Ⓜ Web Browser Access for Easy Setup and Operation
- Ⓜ Vertical or Horizontal Zero U Space Mounting Options
- Ⓜ Dual 15 or 20 Amp Power Circuits
- Ⓜ Switch up to 8,320 Watts
- Ⓜ 115 VAC Models - NEMA 5-15R Outlets
- Ⓜ 208/230 VAC Models - IEC320-C13 Outlets
- Ⓜ Up to Sixteen (16) Individual Outlets
- Ⓜ Power-Up Sequencing
- Ⓜ RS232 Modem/Console Port
- Ⓜ Accepts Standard C-19 to L5/6-20P Power Cords

Web Browser Interface



NEW!
DUAL 20AMP
INPUTS



IPS-800



IPS-1600

Yes, We are Customer Friendly!

- ✓ Two Year Warranty
- ✓ We Stock for Same Day Shipment
- ✓ 30 Day Return Policy
- ✓ Call or Email for an Online Demo

**Dual
Power
Inputs**

**Model
NBB-1600**

www.wti.com

wti

western telematic incorporated

5 Sterling • Irvine • California • 92618-2517 • (800) 854-7226

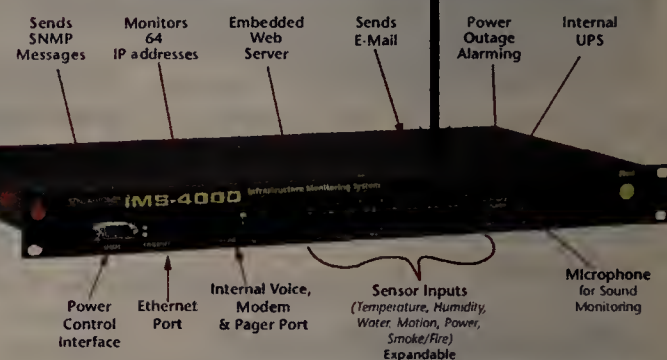
SENSAPHONE
IMS-4000™



Monitor the REST of your Computer Room!



- Water on the Floor
- Temperature
- Power Problems
- Security
- Smoke and Fire
- Humidity
- Video
- And much more



Dealers Wanted

Tel: 877-373-2700
www.ims-4000.com

SENSAPHONE
901 Tryens Road
Aston, PA 19014

NEW!
MiniGoose Climate Monitor
\$199

**Heat
Humidity
Air Flow
Doors
Power
Camera**



(512)257-1462 **ITWatchdogs.com**

MiniGoose \$199

**Video
Camera
\$199**



WeatherGoose \$399

SuperGoose \$499

IT Watchdogs, Inc.

Current sniffer can't keep up?



Clear out problems with **Observer 11**. Now with enterprise strength VoIP analysis. New features include an enhanced VoIP Expert, Quality Scoring, Call Detail Records, MultiHop Analysis, and 64-bit Windows support. It's time to reset your analyzer.

Wired to wireless. LAN to WAN. One network – complete control.



US & Canada
toll free 800.526.5958
www.networkinstruments.com/analyze

UK & Europe
+44 (0) 1959 569880
www.networkinstruments.com/analyze



Increase your data center availability ...with APC Rack Power Distribution

Available
and in-stock.
Order today!

Avoid overloading circuits

Monitor the current draw as you install equipment

Protect circuit from unauthorized use

Turn outlets off when not in use

Avoid in-rush current overload

Outlets are turned on sequentially

Manage power via Network Interfaces

Built-in Web, SNMP, Telnet support

Power Distribution Units

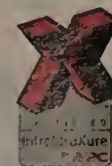
- **Basic:** Vertically and horizontally mounting with a range of amps and voltages
- **Metered:** Ability to monitor the current draw and set alarm thresholds that when exceeded, provide both visual and audible alarms
- **Switched:** Advanced, remote power distribution and control. User configurable. Users can configure the sequence in which power is provided to individual receptacles upon start up.

APC's advanced power distribution units distribute, monitor and remotely control power in rack enclosures.

Now you **can remotely control power to individual outlets and monitor aggregate power consumption** via local and remote displays. Access, configure and control the APC Switched Rack PDU through Web, SNMP or Telnet interfaces.

From basic power distribution to controllable outlets, APC has solutions up to 14.4 kW to fit your IT environment needs. See our entire line of rack PDUs online at www.apc.com.

Every product carrying this mark has been tested and certified for use with InfraStruXure™ architecture. Before you buy, check for the X to guarantee product compatibility.



With over 15 million
satisfied customers,
APC's Legendary Reliability™
guarantees peace of mind.

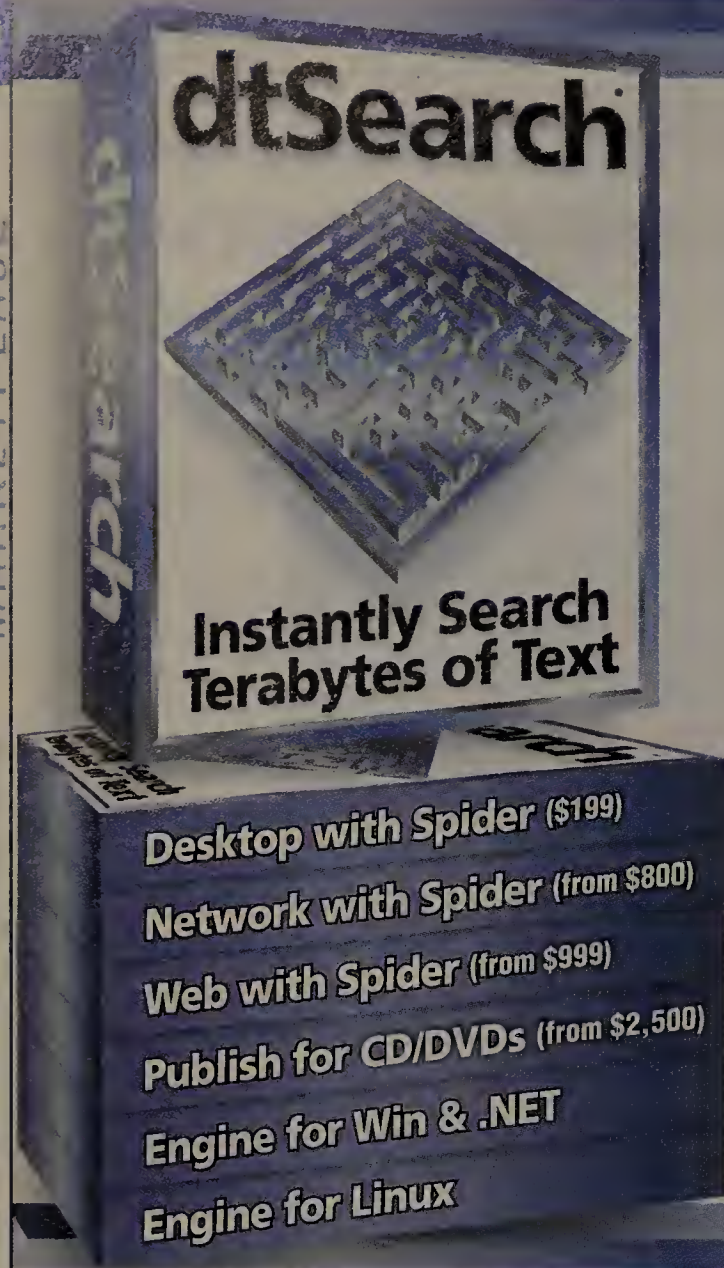


Enter to WIN a FREE APC Rack PDU today.

Visit <http://promo.apc.com> Key Code i377x • Call 888-289-APCC x6829 • Fax 401-788-2797

©2005 American Power Conversion Corporation. All Trademarks are the property of their owners. E-mail: esupport@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

AX4A05EP-US



dtSearch

Instantly Search Terabytes of Text

Desktop with Spider (\$199)
 Network with Spider (from \$800)
 Web with Spider (from \$999)
 Publish for CD/DVDs (from \$2,500)
 Engine for Win & .NET
 Engine for Linux

dtSearch® Terabyte Indexer

“Bottom line: dtSearch manages a terabyte of text in a single index and returns results in less than a second” — InfoWorld

- ◆ over two dozen indexed, unindexed, fielded data and full-text search options
- ◆ **highlights hits** in HTML, XML and PDF, while displaying **links**, formatting and **images**
- ◆ converts other file types (word processor, database, spreadsheet, email and attachments, ZIP, Unicode, etc.) to HTML for display with **highlighted hits**
- ◆ Spider supports static and dynamic Web content, with WYSWYG **hit-highlighting**
- ◆ optional API for C++, .NET, Java, SQL, etc. Ask about new .NET Spider API

Developer Quotes and Reviews

dtSearch vs. the competition:
 “dtSearch easily overpowered the document indexing and searching abilities of other solutions, especially against large volumes of documents”

Reliability: “dtSearch got the highest marks from our systems engineering folks that I’ve ever heard of”

Results: “customer response has been phenomenal”

For hundreds more reviews and developer case studies, see www.dtsearch.com

Contact dtSearch for fully-functional evaluations

The Smart Choice for Text Retrieval® since 1991

“For combing through large amounts of data, dtSearch ... leads the market”
 — *Network Computing*

“Blindingly fast” — *Computer Forensics: Incident Response Essentials*

“Super fast, super-reliable”
 — *The Wall Street Journal*

“A powerful arsenal of search tools”
 — *The New York Times*

“Powerful Web-based engines” — *eWeek*

“Blazing speeds”
 — *Computer Reseller News Test Center*

“The most powerful document search tool on the market” — *Wired Magazine*

1-800-IT-FINDS • www.dtsearch.com

networkTAPs.com

TAP Into Your Network

Only a TAP can provide a complete copy of data from full-duplex links at line rate for monitoring devices. Without a TAP, a monitoring device may be fed incomplete and misleading information—creating false positives and overlooking network problems that actually do exist. Visit www.networkTAPs.com/visibility today.



Copper nTAPs
 10/100\$395
 10/100/1000.....\$995.....\$795



Copper to Optical Conversion nTAPs
 SX or LX\$1,495



Optical nTAPs
 One-Channel.....\$395\$295
 Two-Channel.....\$790\$575
 Three-Channel\$1,185\$845

To learn more about how nTAPs can boost your network visibility, which configuration option is best for you, and to check out new pricing go to www.networkTAPs.com/visibility or call 866-GET-nTAP today. Free overnight delivery.*



*Free overnight delivery on all U.S. orders over \$295 confirmed before 12 p.m. Central Time. nTAP and all associated logos are trademarks or registered trademarks of Network Instruments, LLC.



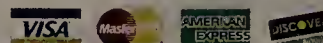
USED Sell
buy TRADE

1.800.727.1419

1.408.727.1122

www.recurrent.com

info@recurrent.com



3431 De La Cruz Blvd, Santa Clara, CA 95054

ReCURRENT
 technologies, inc.

YELLOWJACKET® 802.11bg W-LAN ANALYZER

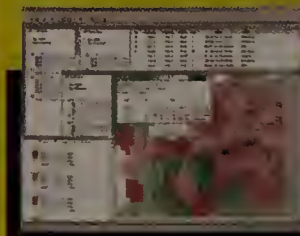
- 2.4 GHz (802.11b & g) SPECTRUM ANALYSIS
- Locate hackers and rogue AP's
- Pinpoint specific interference sources
- Install & secure Wi-Fi networks

• SECURITY

• WISPs

• HOTSPOTS

• INSTALLERS



Yellowjacket®
 Hive screen

Yellowjacket® Hive Software
 Site Initiator/Supervisor/
 Investigator indoor/outdoor
 mapping W-LAN coverage
 solution

BERKELEY VARITRONICS SYSTEMS METUCHEN, NJ 08840
 (732) 548-3737 www.bvsystems.com



Shown with
 optional
 Direction
 Finder

NETWORKWORLD

Editorial Index

A	
Access	8
AFP Networks	56
Alcatel	16
Alfresco Software	21
Apple	6
Array Networks	56
Aventail	17, 56
B	
BearingPoint	8
Bindview	21
BMC Software	44, 59
Broadcom	8
C	
CA	14, 17
Caymas Systems	56
Centeris	21
Centrify	21
Check Point	1, 17, 56
Cingular	24
Cisco	1, 8, 12, 16, 17
ConSentry	17
D	
DataSynapse	44
Dell	16
Documentum	22
E	
Enigmatec	44, 46, 48
F	
F5 Networks	56, 57
Force10 Networks	10
G	
Gluecode Software	1
Good Technology	20
Google	8, 21, 24
H	
Hammerhead Systems	24
HP	44
I	
IBM	1, 6, 10, 14, 17, 44
Intel	56
Intellisync	20
Internet Security Systems	18
IronPort	22

Advertiser Index

Advertiser	Page #	URL
1 & 1 Internet Inc	38-39	1and1.com
American Power Conversion	47	http://promo.apc.com
American Power Conversion	63	www.apc.com
AT&T	32	TheNewATt.com
Avocent	30	www.avocent.com/securitytoday
Berkeley Varitronics Systems	64	www.bvsystems.com
Computerwise	52	www.computerwise.com
Cyclades Corp	49	www.cyclades.com/akvm
Digital City Expo	69	www.digitalcityexpo.com
Diskeeper Corp	13	www.diskeeper.com/nw10
dtSearch Corp	64	www.dtsearch.com
EMC Corp	70	www.EMC.com/ElCamino
Fluke Networks	35	www.flukenetworks.com/APM
Force10 Networks	23	www.nww.com/2force10
Foundry Networks	15	www.foundrynetworks.com/VOLP
Gateway	4	Gateway.com
*Hewlett Packard	19	hp.com/go/ML150mag7
*Hewlett Packard	19	www.hp.com/go/procurveidm3
IBM Corp	43, 45	ibm.com/takebackcontrol/i5
Internet Security Systems Inc	11	www.iss.net/ESP/network
IT Watchdogs	62	ITWatchdogs.com
Microsoft Corp	2-3	microsoft.com/bigdata
NFC	9	www.necunified.com/ip
Netreo Inc	61	www.netreo.net/nw/
NetSupport Inc	60	www.netsupport-inc.com
Network Instruments LLC	63	www.networkinstruments.com/analyze
Network Instruments LLC	64	www.networkIAPs.com/visibility
Packeteer Inc	37	www.packeteer.com
Pulver.com	48	www.von.com
Raritan Computer	50	www.KXbutt.com
Recurrent Technologies Inc	64	www.recurrent.com
Rose Electronics	60	www.rose.com
Sensaphone	62	www.ims.4000.com
Server Technology Inc	52	www.servertech.com
Spectrum Control Inc	52	www.specpower.com/smart
Sun Microsystems Inc	7	sun.com
Test-Um	58	www.test-um.com
Western Telematic Inc	62	www.wti.com

NetworkWorld® Events and Executive Forums

Network World Events and Executive Forums produces educational events and executive forums worldwide, including our one day Technology Tours, customized on-site training, and executive forums such as DEMO®, DEMOMobile®, and VORTEX®, as well as the DEMOletter and VORTEX Digest newsletters. For complete information on our current seminar offerings, call us at 800-643-4668 or go to www.networkworld.com/events.

J	
JBoss	1
Juniper	16, 56, 57
L	
Lucent	16
M	
McAfee	44
Microsoft	1, 6, 8, 12, 14, 20, 54
Mirage Networks	44
Mirapoint	22
N	
NetIQ	21
NetPro	21
Nokia	8, 56
Nortel	16, 56, 57
O	
Opnet Technologies	44
Oracle	1, 14, 54
P	
ProactiveNet	44
Q	
Quest	21
R	
Research in Motion	20
S	
Secure Computing	22
Skype	8
Sleepycat Software	1
Sofftricity	44
SonicWall	56, 57
Sophos	22
Sourcefire	1
Sun	14, 44, 46
Sygate	12
Symantec	12
T	
3Com	8, 12
Texas Instruments	8
TippingPoint	8
V	
VMware	46
Vodafone	24

Network World – www.networkworld.com

ADIC	Microsoft Corp
Adtran Inc	Mimosa Systems
Akamai Technologies	NCS Technology
American Power Conversion	Neon Software Inc
Arbor Networks	NetQoS, Inc.
Arrow Electronics	Network Associates
Avaya - NJ	Network Physics
CDW	Nokia-AK, Inc.
Ciena Corp	Novell
Cisco Systems, Inc.	Oracle Corp
Client Name	Packeteer Inc.
Colubris Networks, Inc	Permeo
Coradiant	Pulver.com
Cyclades Corp	Quest Software
Dell Computer Corp	RoboticsTrends
EMC Corp	SafeNet
Emulex Corp	SAS Institute
FaceTime Communications	Server Technology Inc
Fluke Networks	ShoreTel
Hitachi Data Systems	Siemens Business Comm.
HP - CA	SPI Dynamics
IBM	Spirent Communications
IDG World Expo/LinuxWorld	SSH Communications
Iomega	Systimax Solutions
IronPort Systems	Tacit Networks
IXIA	Tripp Lite
KaplanIT	Websense Inc
Lancope	WiredRed Software
LANDesk	Zultys
LightPointe Communications Inc.	

These indexes are provided as a reader service. Although every effort has been made to make them as complete as possible, the publisher does not assume liability for errors or omissions.

*Indicates Regional Demographic

Network World, Inc.

118Turnpike Road, Southborough, MA 01772
Phone: (508) 460-3333

TO SEND E-MAIL TO NWW STAFF
firstname_lastname@nww.com

Evilee Ebb, CEO/Publisher
John Gallant, President/Editorial Director
W. Michael Draper, Chief Operating Officer
Eleni Brisbois, Administrative Planning Manager

FINANCE

Mary Fanning, Vice President Finance
Paul Mercer, Finance Manager
Betty Amaro-White, Event Finance Manager

HUMAN RESOURCES

Eric Cormier, Human Resources Manager

CUSTOM MEDIA

Michael Siggins, Associate Publisher/Custom Media

MARKETING

TerryAnn Fitzgerald, Sr. Director of Customer Experience
Jeanne Seltzer, Marketing Communications Manager
Barbara Sullivan, Senior Research Analyst
Judy Schultz, Marketing Design Manager
Cindy Panzera, Marketing Designer
Deborah Vozikis, Design Manager Online

PRODUCTION SERVICES

Greg Morgan, Senior Director, Production Services
Karen Wallace, Senior Director, Advertising Operations
Mike Guerin, Manager of Production Technologies
Jami Thompson, Sr. Production Coordinator
Veronica Trotto, Online Operations Coordinator
Jane Wilbur, Online Ad Traffic Coordinator
Maro Eremyan, Advertising Coordinator
Christina Pankievich, Advertising Coordinator

CIRCULATION

Richard Priante, Senior Director of Circulation
Bobbie Cruse, Subscriptions Manager

RESEARCH

Ann MacKay, Research Director

DISTRIBUTION

Bob Wescott, Distribution Manager/(508) 879-0700

IDG LIST RENTAL SERVICES

Amy Bonner, Account Executive
P.O. Box 9151, Framingham, MA 01701-9151
Toll free: (800) 434-5478 ext. 6026/Direct: (508) 370-0826
Fax: (508) 370-0020

SEMINARS, EVENTS AND IDG EXECUTIVE FORUMS

Neal Silverman, Executive V. P., Events & Executive Forums
Mike Garity, Sr. Director, Marketing & Bus. Development
Dale Fisher, Director of Operations
Jacqueline DiPerma, Senior Event Coordinator
Karen Bornstein, Account Executive
Danielle Bourke, Event Operations Coordinator
Andrea D'Amato, Sr. National Sales Director
Kristin Ballou-Cianci, Regional Account Director
Jennifer Sand, Regional Account Manager
Cedric Fellows, Regional Account Manager
Grace Moy, Exhibit Sales Manager
Debra Becker, Dir., Marketing & Audience Development
Sara Nieburg, Senior Marketing Manager
Buster Paris, Marketing Specialist

ONLINE SERVICES

Kevin Normandeau, Exec. Vice President/General Mgr., Online
Dan Gallagher, Sr. Director, Audience Development
Mary McIntire, Sr. Manager, Audience Development
Norm Olean, Director of Business Development, Online
Adam Gaffin, Executive Editor, Online
Melissa Shaw, Managing Editor, Online
Jason Meserve, Multimedia Editor
Sheryl Hodge, Associate Online News Editor
Jennifer Moberg, Online Marketing Program Manager
Chrystie Terry, Manager of Online Audience Development

CLIENT SERVICES

Sharon Stearns, Director of Client Services
Frank Coelho, Client Services Manager
Leigh Gagin, Client Services Manager
Julie Steiner, Client Services Manager

INFORMATION SYSTEMS

W. Michael Draper, Chief Operating Officer
Tom Kroon, Director of Systems Development
Anne Nickinello, Senior Systems Analyst
Puneet Narang, Manager of Database Technologies
William Zhang, Senior Software Engineer
Manav Sehgal, Senior Software Engineer
Prashanth Menon, Database Support Specialist
Rocco Bortone, Director of Network IT
Peter Hebenstreit, Senior Network/Telecom Engineer
Brian Wood, Senior Systems Support Specialist
David Mahoney, Systems Support Specialist

BUSINESS SERVICES

Mark Anderson, Business Services Supervisor
Linda Cavanagh, Business Services Administrator

IDG

Patrick J. McGovern, Chairman of the Board
Bob Carrigan, President, IDG Communications

Network World is a publication of IDG, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. IDG publishes over 300 computer publications in 85 countries. One hundred million people read one or more IDG publications each month. *Network World* contributes to the IDG News Service, offering the latest on domestic and international computer news.

Sales Offices

Carol Lasker, Executive Vice President, Sales
Jane Weissmen, Sales Operations Manager
Internet: clasker, jweissman@nww.com
(508) 460-3333/FAX: (508) 460-1237

New York/New Jersey

Tom Davis, Associate Publisher, Eastern Region
Elisa Della Rocco, Regional Account Director
Agata Joseph, Sr. Account Coordinator
Internet: tdavis, elisas, ajoseph@nww.com
(201) 634-2300/FAX: (201) 634-9286

Northeast

Elisa Della Rocco, Regional Account Director
Internet: elisas@nww.com
(508) 460-3333/FAX: (508) 460-1237

Mid-Atlantic

Jacqui DiBianca, Regional Account Director
Renee Wise, Account Coordinator
Internet: jdbian, rwise@nww.com
(610) 971-1530/FAX: (610) 975-0837

Midwest/Central

Tom Davis, Associate Publisher, Eastern Region
Agata Joseph, Sr. Account Coordinator
Internet: tdavis, ajoseph@nww.com
(201) 634-2314/FAX: (201) 712-9786

Southeast

Don Seay, Regional Account Director
Renee Wise, Account Coordinator
Internet: dseay, rwise@nww.com
(404) 504-6225/FAX: (404) 504-6212

Northern California/Northwest

Sandra Kupiec, Associate Publisher, Western Region
Karen Wilde, Regional Account Director
Courtney Cochrane, Regional Account Director
Vanessa Tormey, Regional Account Manager
Jennifer Hallett, Account Coordinator
Cyril Talusan, Account Coordinator
Internet: skupiec, kwilde, ccocrane, vtormey, ctalusan, jhallett@nww.com
(510) 768-2800/FAX: (510) 768-2801

Southwest/Rockies

Becky Bogart, Regional Account Director
Internet: bbogart@nww.com
(949) 250-3006/FAX: (949) 833-2857

Online/Integrated Solutions

Kevin Normandeau, Exec. Vice President/General Mgr., Online
Susan Cardoza, Associate Publisher, Online
Scott Buckler, Online Account Director
Stephanie Gutierrez, Online Account Manager
Debbie Lovell, Online Account Manager
Kate Zinn, Online Account Director
Denise Landry, Account Coordinator
Lisa Thompson, Account Coordinator
Internet: knormandeau, scardoza, sbuckler, sgutierrez, dlovell, kzinn, dlandry, lthompson@nww.com
(508) 460-3333/FAX: (508) 861-0467

MARKETPLACE/EMERGING MARKETS

Donna Pomponi, Director of Emerging Markets
Enku Gubaie, Manager of Marketplace/Emerging Markets
Caitlin Horgan, Manager of Marketplace/Emerging Markets
Chris Gibney, Sales Operations Coordinator
Internet: dpomponi, egubaie, chorgan, cgibney@nww.com
(508) 460-3333/FAX: (508) 460-1192



CCIE

continued from page 1

times that I took the exam."

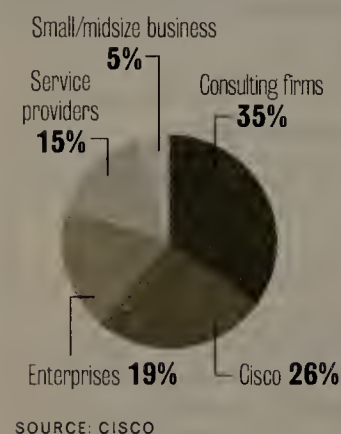
Sequeira passed the lab exam in January, joining the ranks of 12,967 network engineers who have aced the grueling hands-on test.

For most, passing the CCIE lab exam requires studying as many as 1,000 hours and maintaining a laser-like focus that leaves spouses, children and hobbies by the wayside. The lab exam also costs big bucks, with the purchase of workbooks, preparatory courses, racks of Cisco equipment, exam fees and travel reaching as high as \$20,000.

The lab exam is so difficult that it has taken on mythic proportions in the network industry. CCIEs talk about how physically taxing the process is and list it

Where CCIEs work

Those passing the exam are well represented across many industry segments.



among their greatest accomplishments.

"The CCIE was infinitely more difficult for me than anything else I've ever done," says Sequeira, a senior technical instructor for Thomson NETg in Scottsdale, Ariz., who holds CCIE No. 15626.

"Everything I had ever done, I had excelled at. If you had told me that I would fail the CCIE four times before I passed it, I would have said that was not possible," he says.

Rus Healy was speechless when he found out in August 2005 that he had passed the CCIE lab exam on his fourth try. Healy, who holds CCIE No. 15025, is program manager for technical training and certifications at Microwave Data

Systems in Rochester, N.Y.

"I got an e-mail from my proctor saying congratulations while I was at the airport waiting for my flight home from the exam," Healy says. "I called my wife, and I was crying. . . . I have never felt anything like it. It was such an incredible feeling of achievement."

The CCIE has been considered the most difficult certification in the IT industry since its launch in 1993. It has two parts: a written exam and a practical lab test. The CCIE is offered in five tracks: routing and switching; security; service provider; storage networking; and voice. The most popular track is routing and switching.

"Over the life of the program, the overall pass rate has usually been 26%," says Mike Reid, senior manager of CCIE programs for Cisco, which won't reveal the pass rate for last year. "We target the material at an expert level. The pass rate is secondary."

The written exam, which includes multiple-choice and fill-in-the-blank questions, is relatively easy, and people usually pass it on the first or second try. Each year around 12,000 people take the CCIE written exam, which is available at testing facilities run by Pearson VUE or Prometric.

"The written exam is easier because it's in a more traditional format," Reid says. "It's a theory exam. People generally try to study for it by sitting down with a book and reading it. You can't do that with the lab exam because you need hands-on practice."

Network engineers must pass the written exam before they are eligible to take the lab exam, which is available at 10 Cisco facilities worldwide. Around 8,000 people take the CCIE lab exam each year. One person has taken it 19 times and still hasn't passed.

The lab exam is difficult because it tests practical, problem-solving skills. Test takers have eight hours in the lab to properly configure and troubleshoot Cisco network gear. They need to get 80% of the possible points to pass.

Passing the lab exam requires hands-on experience, speed and the ability to remain calm in the face of extreme pressure.

"On my third and fourth attempts, I had the knowledge but I simply didn't have the speed, the task analysis and the troubleshooting skills," Sequeira says. "When you have a problem

CCIE exam at a glance:

Number of people who have passed:	12,967 (as of 2/1/2006)
Number of CCIEs in the United States:	4,249 (as of 2/1/2006)
Pass rate:	26% over the 13-year life of the program
Average number of times it takes to pass the lab exam:	2.5
Number of people who take the written exam each year:	12,000
Number of people who take the lab exam each year:	8,000
Number of CCIE books sold by Cisco Press:	100,000
Average salary of a CCIE:	\$102,000 (per TCGmag.com)

SOURCE: CISCO

in your rack, you can't take 15 minutes to find it. You literally should be able to find and fix that problem within minutes."

Network engineers who pass the CCIE exam get a designated number to use on business cards and e-mail signatures. They also receive a plaque from Cisco and are eligible to purchase CCIE office items and apparel. Cisco sponsors online forums for CCIEs and automatically routes them to more experienced technical support staff.

CCIEs need to renew their certifications every two years by taking a written exam. But they never have to take the dreaded lab exam again.

It's rare to pass the CCIE lab exam on the first try. But that's what happened to Wendell Odom, who holds CCIE No. 1624. He passed the exam in 1995 after studying for one day.

"I had the perfect job to prepare you to pass the exam," says Odom, who works as a senior instructor for Skyline Advanced Technology Services in Campbell, Calif. "I taught all of the classes that Cisco recommended at the time you take for the CCIE. I also did consulting work for enterprises."

Odom says he was lucky to get an exam that focused on IBM protocols, which he knew well. The test was so easy for him that he finished the build portion of the exam an hour and a half early.

"I could have shown up on the next day and gotten an exam that focused on DEC or Apple protocols, and I wouldn't have passed," Odom says.

Most CCIEs have to work harder than Odom did to pass the lab exam.

Robert Yee studied five or six

hours each night and 16 hours per day on the weekends in the months leading up to taking the lab exam. He bought a rack of Cisco equipment and set it up in his house. He took a week off of work and attended a CCIE boot camp. He passed the lab exam in May 2003 on his second try.

"The last month, my studying was very intensive," says Yee, who now is the manager of network engineering for J2 Global Communications in Los Angeles. Yee had nine years of IT experience, including four years of operating Cisco routers, switches and firewalls, before he decided to take the exam. Yee is CCIE No. 11716.

Yee says his wife Sara, an insurance agent, was supportive during the months he was studying for the exams. "She knew this was a big test, and if I could pass this it would be a big deal," he says.

Yee estimates he spent \$16,000 on the CCIE exam, including Cisco equipment, the boot camp class, books and exam fees. His

employer at the time didn't reimburse employees for CCIE-related expenses or give bonuses for passing the test.

"It's a big investment, but I knew it was an investment in myself and my family," Yee says.

Test takers receive e-mail notice within 48 hours that they have passed or failed the exam. People respond to passing the test in different ways. Many burst into tears. Others get drunk. Most celebrate with their loved ones.

"My favorite experience as a proctor in the CCIE exam lab is one guy who before he took the exam showed me that he had an engagement ring in his pocket," says Kathe Saccenti, product manager for CCIE programs at Cisco. "He said that when he passed the exam his next step was engagement."

Maurilio Gorito, a customer support engineer with Cisco's CCIE program, took a 20-day vacation in his native Brazil with his family after passing the lab exam. Gorito spent eight months studying as much as 40 hours per week to pass the written and lab exams. He took the written exam five times and passed it in December 1997. He took the CCIE lab exam twice and passed it in June 1998.

"After I passed, my wife got a little sick from all the effort she did while I studied," says Gorito, who holds CCIE No. 3807. "I had put my sons, who were 7 and 8 at the time, aside. We needed to take some time together and relax as a family."

Passing the exam means prestige and money for most network
See CCIE, page 67

■ **Network World**, 118 Turnpike Road, Southborough, MA 01772-9108, (508) 460-3333.

Periodicals postage paid at Southborough, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #40063800. Network World (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 118 Turnpike Road, Southborough, MA 01772-9108.

Network World is distributed free of charge in the U.S. to qualified management or professionals.

To apply for a free subscription, go to www.subscribe.com or write Network World at the address below. No subscriptions accepted without complete identification of subscriber's name, job function, company or organization. Based on the information supplied, the publisher reserves the right to reject non-qualified requests. Subscriptions: 1-508-490-6444.

Nonqualified subscribers: \$5.00 a copy; U.S. - \$129 a year; Canada - \$160.50 (including 7% GST, GST#126659952); Central & South America - \$150 a year (surface mail); all other countries - \$300 a year (airmail service). Four weeks notice is required for change of address. Allow six weeks for new subscription service to begin. Please include mailing label from front cover of the publication.

Network World can be purchased on 35mm microfilm through University Microfilm Int., Periodical Entry Dept., 300 Zebb Road, Ann Arbor, Mich. 48106.

PHOTOCOPYRIGHTS: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Network World, Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus 50 cents per page is paid to Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970.

POSTMASTER: Send Change of Address to **Network World**, P.O. Box 3090, Northbrook, IL 60065. Canadian Postmaster: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A7C9.



Copyright 2005 by Network World, Inc. All rights reserved. Reproduction of material appearing in Network World is forbidden without written permission.

Reprints (minimum 500 copies) and permission to reprint may be purchased from Reprint Management Services at (717) 399-1900 x128 or networkworld@reprintbuyer.com.

USPS735-730

Open source

continued from page 1

company in Quincy, Mass. "One of the main reasons that CitiStreet likes to deal with vendors such as JBoss is that our senior technical staff can deal with their technical staff, instead of having to deal with useless layers in between," he says. "We don't buy software because of fancy brochures or well-dressed sales staff. We buy software to gain benefit from great programmers."

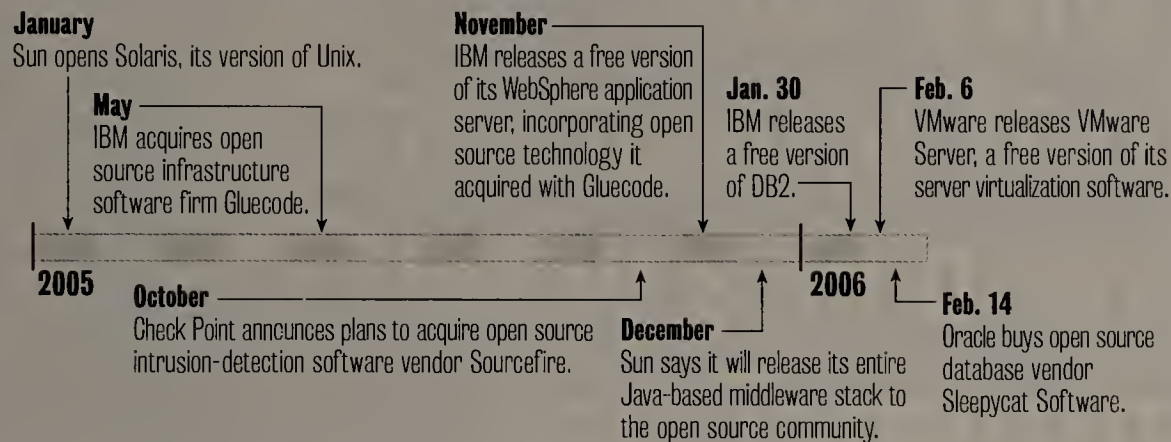
Another concern with commercial vendors acquiring open source companies is the possibility that the software could be applied to enhance proprietary products.

"The question that customers need to pay attention to is what is going to happen to the code that was open source," says Bob Igou, a research director at Gartner. "Does it remain open source? Is the acquiring company going to make sure it's even better tested and quality assured and provide services around it? Or are they worst case going to cannibalize it and integrate it into something else they're doing and in a sense the open source product goes away?"

It remains to be seen how these acquiring vendors will treat their new open source assets. Users are watching with caution.

Open season

Commercial vendors are backing open source in a big way, snapping up open source companies and releasing free versions of their own software. A look at some recent activity:



"It's a bit too early to know whether [this trend] will be beneficial," says Corey Ostman, director of new technology initiatives at PriceGrabber.com in Culver City, Calif. "One of the biggest challenges would be if these commercial companies morph the [open source] products in such a way that they no longer offer leading-edge technologies."

Even if that does happen, Ostman says he is convinced that the open source community likely will develop alternatives to fill the gap.

"The open source marketplace has always been competitive and dynamic," he says.

It's that kind of innovation, cou-

pled with growing corporate interest, that is driving commercial vendors to take a closer look at their open source counterparts.

"The jig is up for commercial vendors," says Richard Monson-Haefel, a senior analyst at Burton Group. "They're discovering that in certain cases open source software is basically pulling the rug out from under them by commoditizing the market."

"They've tried to resist . . . originally by spreading fear, uncertainty and doubt, and then by challenging the quality of the software. But now they're buying the companies that are sponsoring the [open source] work," he says.

Gartner predicts that by 2010, software vendors that don't incorporate open source software into their products risk becoming uncompetitive because of the cost associated with relying on in-house engineering resources.

Part of the allure for commercial vendors is the opportunity to attract more developers with low-cost, open products, with the hope of driving business upstream into more robust — and expensive — offerings for broader production deployments.

"What the vendors are trying to do here is they're trying to find a foothold in a market that is changing rapidly and substantially," Monson-Haefel says. "And they're also trying to find ways in which to guide people who are adopting open source to their commercial offerings as they look for more robust and sophisticated platforms."

For that reason, some industry watchers say open source products are in good hands when

acquired by responsible commercial software makers.

"It's just not in their interest to destroy the community or stifle the ongoing development," says Tony Wasserman, executive director of the Center for Open Source Investigation at Carnegie Mellon University's campus in Moffett Field, Calif.

As in any vendor acquisition, some purchasers will be better shepherds than others, Wasserman says. "Acquisitions tend to work or not work — in both the commercial and open source world — based on what the acquirer does," he says.

Joel Snyder, senior partner at consulting firm Opus One and a Network World Lab Alliance member, sees lots of potential in open source vendor acquisitions. "Companies should be happy when they see a big name behind an open source project, because it generally means more and better support, rather than less," he says.

To some extent, the trend is inevitable. "Really solid enterprise software always seems to need some commercial backing," Snyder says. Some of the most significant open source projects — Linux, BIND, MySQL and Sendmail — are where they are largely because of corporate dollars being poured into them, he says.

After all, altruism alone isn't going to sustain software developers who have to make a living, Snyder says. "The reality is that the two — commercial and open source — actually thrive better together than they do separately," he says.

Bob Hecht is aware of the potential for open source players to get

purchased, but that doesn't deter him from depending on open source software for mission-critical systems at his company, Informa.

"One of the biggest risks that companies have in purchasing open source software is success," says Hecht, who is vice president of content strategies at the London firm that produces publications, events and data services worldwide. "Success means that somebody is going to end up offering somebody a lot of money to buy it out."

Informa runs a full Linux stack for many of its front-end applications, and it has embedded Apache's Lucene search engine in dozens of applications, Hecht says. It has tinkered with Liferay's portal, and it's getting ready to go live with its first deployment of Alfresco Software's open source enterprise content management software.

In addition, Informa is preparing to deploy a multimillion-dollar content delivery platform that uses a MySQL repository, he says.

"I'm comfortable in saying that if we build something on an open source platform and it gets bought, it's ours anyway," he says. "The implication is for future development, but open source has a way of living. It finds a way."

To prepare for a scenario in which development or support for an open source application is cut off, Hecht makes sure Informa's internal development staff is skilled with the product. "We look at it as a reason to get as familiar and capable with this platform as we possibly can so that we essentially secure our future. If we do, then we immunize ourselves from potential problems like that," he says.

Regardless, the commercial interest in open source should send a message to IT buyers that open source is here to stay.

"If you've had doubts that open source is mainstream today, the amount of money being thrown around here should make you believe this is not just a flash in the pan," says Michael Goulde, a senior analyst at Forrester Research. "It should be something you're considering, if you're not already." ■

CCIE

continued from page 66

engineers. Cisco says that 80% of the network engineers who pass report increased status on the job, while 75% get cash rewards, according to a survey taken in 2004.

Odom raised his consulting rates by 25% after passing the CCIE exam. He also became one of the best-selling authors for Cisco Press, writing books that help others pass the CCIE exams.

"No one ever gave me pushback on my rates," Odom says. The exam "translated into real dollars for me."

Network engineers who have passed the exam say it is worth the time, money and personal sacrifice.

Gorito, who was among the first 15 CCIEs in Brazil, immediately started getting job offers after passing the exam. He joined NCR and worked in New York supporting Merrill Lynch. From there he joined Cisco. He wrote a book for Cisco Press about preparing for the CCIE routing and switching lab exam.

"For me, the career impact was big," Gorito says. "When you finish the process, you have learned so much that you're at a different level of knowledge and skills. This is the big win of the CCIE." ■

► **Cram more for the exam at www.nww.com with stories on:**

- Non-techies don't appreciate CCIE. **DocFinder: 2257.**
- Cisco releases new exam prep tool. **DocFinder 2258.**
- Share your CCIE war stories in our online forum. **DocFinder 2255.**

LINUX

Subscribe to our free newsletter.
DocFinder:1919 www.networkworld.com



BACKSPIN Mark Gibbs

Demo and the Next Big Things

I recently attended the Demo '06 show in Phoenix and, while the show is hosted by Network World, I can honestly say it is one of

the most exciting industry events I know. What Demo shows is that innovation is alive and well. Given that most of the 700 attendees were venture capitalists, it also shows there's money out there looking for the Next Big Thing.

What kind of things? Well, developments in technologies and products. At the 50,000-foot level, a Next Big Thing is something that transforms markets, killing off the moribund or stagnant products and enabling the development and rise of new products that often create new technology or product ecosystems.

At Demo there were two panels that addressed Next Big Thing technologies: Computational biology, which involves a range of topics centered around the intersection of computing as applied to genomics; and the Future of security, which looked at the challenges of security in an increasingly connected and complex networked environment.

The latter panel was anything but good news, with Hilarie Orman, CTO and vice president of engineering at Shinkuro, summing up the current situation by saying, "The state of security is dismal, absolutely abysmal." The panel confirmed what we all suspect: Security won't get

any easier, will probably get harder, the risks will get greater and then we'll die.

The panel on computational biology was more uplifting with a lot of enthusiastic discussion about the effect of personalized medicine and the enormity of the tasks of calculating protein folding and virtual biology.

In terms of Next Big Thing products, a few demonstrations at the show have the potential to make an impact on how we do IT in the next two or three years.

One of my favorites was IPswap described as "a global marketplace that allows people to share, interact, solve problems and create new solutions." IPswap is intended to make it possible for people who want software and people who make software to find each other and negotiate terms of engagement not only over price but also over royalties. While the company seems to focus on consumer projects ("I want this feature on my iPod for \$25"), I suspect this could become a tremendous corporate resource ("I want this feature on my server for \$250").

Another company with an interesting idea was Krugle. It offers a specialized search engine for easily finding open source code and related technical information. Given that interest in open source is growing, this will be invaluable to corporate developers.

Avokia was at Demo showing ApLive, a product that maximizes database availability by virtualizing the data layer to

support real-time transaction replication and load balancing across multiple active synchronized databases.

One of my top picks of the show was another database-related solution from Panoratio Database Images. Panoratio's products, .pdi Generator and .pdi Explorer, let you, respectively, take a highly compressed snapshot of a database and then view it.

Compression is achieved by applying several algorithms to datasets of as many as 2,000 dimensions with as many as 100 million rows! The result is a static database between 30 and 1,000 times smaller than the original that can be stored in memory and searched with remarkable speed. The company showed a laptop supporting a database of 110 dimensions that covered every play ever run in the National Football League!

Just imagine being able to distribute gonzo databases easily to the people who need them and not having to provide real-time access for anything but current data. This is the kind of technology that will be invaluable in data-intensive fields such as medical research, demographic surveys and Web analytics.

The Next Big Things are out there, rushing towards us, and Demo is the place to find them.

What do you think will be the next Big Thing? Tell backspin@gibbs.com.



NETBUZZ News, insights and oddities

Wikipedia is a wonderful resource, but . . .

Paul McNamara

What's not to like about Wikipedia. Almost 1 million articles strong in the English version, this immensely popular site has become a go-to resource for 'Net users

doing research for school, work or fun.

What's not to like, though, is that Wikipedia — the self-proclaimed "free encyclopedia that anyone can edit" — cannot be trusted to have its facts straight. Wikipedia can't be trusted expressly because anyone can edit it — worse yet, anyone can edit it under the cloak of anonymity. And anyone too often includes vandals and pranksters.

It's a combination that makes trust all but impossible, no matter how otherwise valuable the site may be on any other score — and I say that as an admirer. The wonders and flaws of Wikipedia were detailed last week in a two-part series in *The Boston Globe* (www.nww.com, DocFinder: 2254).

The most notorious example of Wiki-mischief recounted involved a retired Tennessee newspaper publisher whose Wikipedia profile was altered to falsely implicate him in the assassinations of John and Robert Kennedy. The Wiki-powers that be did what they could to undo that libel and have promised to do a better job of policing the site, but that's small comfort to the man whose reputation was besmirched.

Perhaps more troubling from the standpoint of trustworthiness is the less conspicuous shenanigans and mistakes that plague the site. For example, dozens of members of Congress have had their Wikipedia profiles scrubbed clean of embarrassing facts by eager-beaver staffers.

You just never know what you're going to get there. Let's say you're looking for biographical information about Bill Gates and Wikipedia tells you that "during his brief stint at Harvard, Gates pledged to the Phi Gamma Delta fraternity."

Would you think, "I didn't know Gates was FIJI?" or "Hey, look, Wikipedia has Gates in there with Bluto, Otter and the rest of the Animal House gang."

All you need to see what's wrong with a Wikipedia entry is a firm grasp of the facts yourself. My search the other day took me to a Wikipedia article on a subject about which I am quite familiar: *The MetroWest Daily News* is a small newspaper in Framingham, Mass. According to the brief Wikipedia article about it: "The current name is the third in the newspaper's history. Initially, it was known as *The South Middlesex Daily News*, but later was changed to *The Middlesex Daily News*."

Actually, its current name is the sixth in the paper's post-1900 history, most of which was spent doing business as *The Framingham News*. Any longtime Framingham resident older than 50 could have told you so. (Yes, I fixed the article.)

Wikipedians and their fans will argue that whatever ails their baby is little different, if at all, from the well-publicized ills of the mainstream media: botched reporting, biased writing and outright falsifications. They'll argue that the benefits of wiki collaboration far outweigh any flaws.

None of that gets them around the issue of trust.

Meanwhile, back at Buzzblog

Many, many thanks to all of you who have taken the time to check out my new blog called Buzzblog — DocFinder: 1031. Your supportive e-mails and blog posts have been energizing as I slog my way through the learning curve that comes with this endeavor.

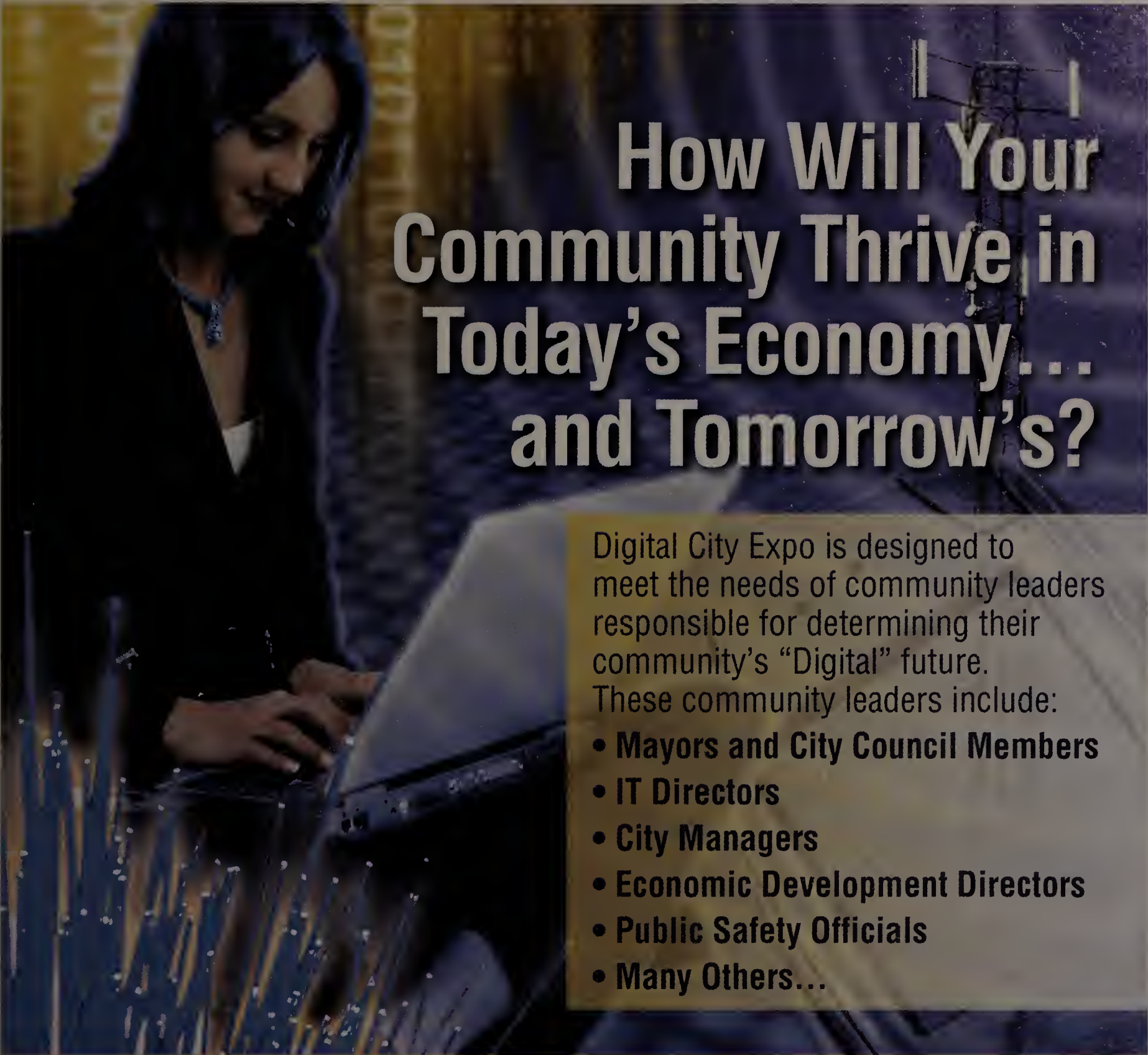
In conjunction with the blog, I am assembling an e-mail distribution list of readers who are willing to be pinged from time to time — not often — when I perceive the need to draw on expert opinion or poll the group. We'll come up with some kind of cute name — Buzzblog Buddies, the Buzzblog Brigade, or maybe something that doesn't suck. If you're interested in being part of the list, please drop me a line.

The address is buzz@nww.com.

RECENTLY IN BUZZBLOG

McNamara's online archive:
www.networkworld.com,
DocFinder: 1032

- Start-up Versai lands 'name' CEO
- Pounding tech companies over China is pointless
- Yet another 'Year of the Customer'



How Will Your Community Thrive in Today's Economy... and Tomorrow's?

Digital City Expo is designed to meet the needs of community leaders responsible for determining their community's "Digital" future.

These community leaders include:

- **Mayors and City Council Members**
- **IT Directors**
- **City Managers**
- **Economic Development Directors**
- **Public Safety Officials**
- **Many Others...**

Learn how you can help your community's economic future at

DigitalCITY^{EXPO}

Connecting America's Communities

Washington DC April 25-26, 2006

www.digitalcityexpo.com

When information
comes together,
everybody feels
much better.

Information lives at El Camino Hospital. A leading California medical facility, El Camino Hospital received the highest ranking in a recent patient survey. But they never rest in their mission to use information technology to help them improve patient care. So they turned to EMC to build a flexible information infrastructure that reduces costs and provides fast, reliable information to doctors and nurses. So everybody feels much better. Talk to EMC or your EMC Velocity² Partner about EMC solutions that start simple and stay simple.

Read the El Camino Hospital profile at www.EMC.com/ElCamino or call 866-796-6369 to learn more.

